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An Address
ON
MODERN RADIOLOGICAL DEVELOPMENTS IN GERMANY.

Delivered at the Annual Meeting of the Institute of Radiology, Incorporated with the Rontgen Society, on Dec. 6th

BY FFRANGCON ROBERTS, M.D.CAMB., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN, IN CHARGE OF THE X RAY DEPARTMENT, ADDENBROOKE'S HOSPITAL, CAMBRIDGE.

I PROPOSE first to describe the remarkable strides which radiology is making in Germany at the present day; secondly, to say something of the economic aspects of the movement; and thirdly, to offer a few suggestions for the improvement of radiology in this country.

A MODEL INSTITUTE.

I shall begin by giving an account of the new radiological institute at the Städisches Krankenhaus or municipal hospital at Frankfort-on-Maine. This institute, which is under the direction of Prof. Holfelder, has only just been opened and is probably the most modern and the best equipped in Europe. The building consists of three floors and a basement. The basement is given up mainly to diathermy, ultra-violet light, and to photographic work other than the actual developing of X ray films. There are six cubicles for diathermy, while for light treatment there are four double cubicles and a large room for children.

The *ground floor* is entirely for radiographic diagnosis. On one side of the main corridor are six large rooms in all of which screening can be carried out. The first room is adapted for operative work such as pyelography and myelography; the second, third, and fourth rooms are for gastro-intestinal work, the fourth being also used for the heart and lungs; the fifth is for the skull and teeth, and the sixth for the limbs. Each room is provided with two dressing-rooms which open at one end into the corridor and at the other into the screening-room. By this means the preparation of patients is carried out with the minimum of inconvenience. Adjoining each screening-room is a small cabin containing the switch-boards. This cabin is separated from the screening-room by barium-brick walls and a lead glass window, but by an ingenious device the operator, while completely protected from X rays, can easily hear the instructions called out by the person carrying out the investigation. The high tension apparatus—and this is a great feature of the institute—is housed on a *mezzanine floor* directly above the control cabins and dressing-rooms. Thus the amount of apparatus in the screening-rooms is reduced to a minimum and a greater safety both for the apparatus and for those who come in contact with it is assured. A window in the ceiling of the cabin permits the operator to read the output of the machine as registered on the clocks above. On the opposite side of the corridor are the developing-rooms, a large room for washing, drying, and viewing films, this room being also used for lectures, a kitchen for the preparation of barium meals, waiting-rooms both for ambulatory and bed patients, and administrative offices.

The *first floor* is for X ray therapy. This is carried out in two large cheerful well-ventilated rooms with big windows. In each room are three large therapy tubes enclosed in so-called "cannons," in the design of which Prof. Holfelder has to my mind displayed great ingenuity. They project horizontally into the room from a semi-octagonal glass enclosure through which they connect to the high-tension apparatus placed on the floor above. They can be raised or lowered and rotated through a horizontal axis with the greatest ease, with the result that any part of the body can be treated with very little discomfort to the patient. They are also perfectly shock-proof; any part of the outside of the cannons can, in fact, be freely handled while the tube is in operation. A further point is that no radiation can escape unless a filter is in position. Patient, operator, and attendant are thus quite free from danger. There is nothing to alarm the patient or to give him a feeling of despair as is so often the case in rooms devoted to this purpose. On the contrary, he finds himself in a atmosphere of cheerfulness and hope. The control cabins are arranged as previously described for diagnosis. On the opposite side of the corridor are waiting-rooms and rooms for surgical dressings, for examining patients, and for special investigations such as basal metabolism. On this floor, too, are the director's room, offices, and a library.

On the *second floor* is the high-tension plant for therapy. These are of the "stabilivolt" or condenser type, the current being led below through gaps in the floor into the semi-octagonal enclosures already described and thence into the cannons. A small room at the end is for standardisation and is so arranged that any apparatus at will can be connected with the measuring instruments. The remainder of this floor contains storage-rooms for films, workshops, and quarters for the resident staff.

The cost of this building, excluding the actual apparatus but including the furniture, fittings, and wiring, was about £28,600, or £2 14*s*. per cubic metre. The expense was borne partly by the hospital—that is to say, by the State, for this hospital, like most in Germany, is State-controlled—and partly by the Allgemeine Ortskrankenkasse which is the largest insurance society in Germany. This society, by way of lessening its expenditure on X ray fees, had intended building its own department, but decided that the interests of economy would be better served by combining with the hospital.

The institute has been designed to cope with 120–200 radiological examinations and 90–120 treatments per diem. It may be thought that this accommodation would satisfy the needs of Frankfort with its 500,000 inhabitants. Such, however, is very far from being the case, for there are many other X ray departments in the town, and even in the same hospital there is another, attached to the medical clinic, where at least as much X ray diagnosis is being carried out as in Prof. Holfelder's institute.

OTHER RADIOLOGICAL DEPARTMENTS.

Passing now to other towns, I found that at Mannheim under Dr. Diederich there was a radiological department which would have more than satisfied me, but this was going to be scrapped and a more modern one built. At the large Burger hospital at Cologne under Prof. Grashey I saw an entirely new department on the lines of the one at Frankfort in course of erection. In some ways the most remarkable department which I saw was not in a hospital at all but belonged to the Allgemeine Ortskrankenkasse at Cologne. This society has built and equipped on the top floor of its head office what I can only describe as a model of its kind, though it is not so large as the one at Frankfort. Here Dr. Teschendorf and his assistants carry out from 100–200 examinations each day as well as a considerable amount of therapy. I was informed that though it is primarily intended for members of the society these are perfectly at liberty to go elsewhere for radiographic examination if they wish, while on the other hand members of other societies are admitted on a recognised scale of fees. Private patients are also taken to the mutual benefit of the society and its radiologists.

WHERE GERMANY LEADS.

I have said enough to show that Germany is overwhelmingly superior to this country both in the extent to which radiology is applied and also in equipment and organisation; and this is the more remarkable when the resources of the two countries are compared. It should be stated, however, that the liberality with which radiology is being endowed is part of the general policy of the Government to spend

money lavishly on all matters affecting the health of the nation, not medical services merely but also housing, public baths, recreation-grounds, and so on. A gigantic experiment in social welfare is in fact being undertaken, and many social observers are wondering whether the end is going to justify the means. But while it may be argued that Germany is erring on the side of extravagance it is, I think, indisputable that in this country the standard of equipment is far from satisfactory.

I can imagine few British radiologists returning from a visit such as mine without a feeling of envy towards their German colleagues, who appear to an outside observer to have no difficulty in obtaining all that they require. Criticism of the way in which radiology is carried out in this country has not been wanting. A year ago, for instance, Sir Thomas Horder complained that physicians' consulting-rooms were filled with worthless X ray films, while in the Annual Report of the Medical Research Council the fact is deplored that no definite school of radiotherapy has sprung up in England comparable to Vienna and other continental schools. While we must not lose sight of the fact that in the long run the man is more important than the machine and that an efficient radiologist with inferior apparatus is better than an indifferent radiologist with first-class apparatus, it may reasonably be replied to these criticisms that some allowance should be made for the technical limitations with which most radiologists in this country have to contend.

I should be sorry if any of my remarks were to be interpreted as casting a reflection upon the competence of British manufacturers. Nothing could be further from my intention. I saw nothing in Germany which so far as I could judge could not be made in England. My sympathies are very much with the British manufacturers, since in comparison with their German competitors they have a small market and must consequently experience great difficulty in expanding their business.

What Can be Done in England.

It appears to me that there are four directions in which this country should move without going to the lengths which Germany has gone.

(1) *Centralisation of apparatus.*—No other branch of medicine involves anything like so large a capital outlay, such heavy running expense, or such extensive accommodation. No other specialist starts practice at so great a financial risk. A surgeon, for example, is not expected at the beginning of his career to equip his own operating theatre and nursing home. The radiologist, unless he happens to be fortunately situated, may be compelled in order to make himself efficient to pledge his credit to an extent which the financial state of the district in which he works does not justify—and all this in order to provide himself with apparatus which is rapidly depreciating in value and is duplicated in the hospital where he works. In Germany the admission of private patients to the X ray departments of general hospitals is the rule, and all the radiologists with whom I discussed this question told me emphatically that they had no desire to burden themselves with their own apparatus. It is true, of course, that in Germany radiologists are paid for their ordinary hospital work, but then they need to be since the proportion of paying patients to the total population is lower there than in England. I am aware that there are many hospitals in this country where this practice has already been adopted with complete success. My point is that it should be carried a great deal further, especially in the poorer districts.

Is, then, private radiology as generally carried out doomed to extinction? I do not think so, since there will always be people who have an intense aversion to institutional treatment. But what I do believe is that as the work becomes more and more complex considerations of space and finance will make it increasingly difficult to practise radiology within the confines of a dwelling-house. Centralisation will mean greater efficiency as well as greater economy.

(2) *Payment to hospital for motor accident cases.*—This question is now very prominently before the public, and the claims of hospitals in this respect have been well expressed by Sir Charles Harris in the *Times* of Nov. 30th. I need only call attention here to the fact that all such accidents of any severity require X ray examination.

(3) *Payment to hospitals from National Insurance Fund.*—It is obvious to anyone that if hospitals were paid for radiological diagnosis and treatment under the Insurance Acts the whole position of radiology would be revolutionised. I am strongly of opinion that this is a matter on which the British Institute of Radiology might well ask for an investigation.

(4) *State grants to hospitals for X ray equipment.*—The proposal to demand grants from the State will naturally meet with opposition from those who pin their faith in the voluntary system. But the high cost of radiology and the increasingly important part it plays gives this branch of medicine a special claim for support from a more reliable source. The State already supports the treatment of many conditions and in particular those such as tuberculosis and venereal disease which the public has proclaimed to be a national scourge. But cancer is now recognised as a national scourge, and those who try to educate the general public on the dangers of this disease are quite rightly never tired of emphasising the importance of early diagnosis. They might well add that in many forms of cancer radiology provides the surest means of early diagnosis, while in nearly all forms it is one of the principal means of treatment. It is therefore to the public interest to see that the work is carried out efficiently. The Government responded to the appeal for radium, though it is only fair to say that in this case it was a matter of limited commodity, and it is an arresting thought that had it not been for the King's illness and recovery the country might never have acquired a quantity of radium sufficient for its needs. A further claim for State support is the logical outcome of the Local Government Act of 1929, for since under this Act the voluntary hospitals will be required among other things to provide radiological facilities for the county council hospitals, the State should be required to provide some share of the equipment in addition to reimbursing the hospitals for running expenses. So far as I am aware—and I speak open to correction—the special claims of radiology for State support have never been presented. It appears to me that the British Institute of Radiology is the body which is most competent to bring influence to bear upon the proper quarter. It should insist that the proper prosecution of the important branch which it represents is not handicapped through lack of funds.

THE SIGNIFICANCE OF THE AFFERENT IMPULSES FROM THE SKIN IN THE MECHANISM OF ABDOMINAL PAIN.

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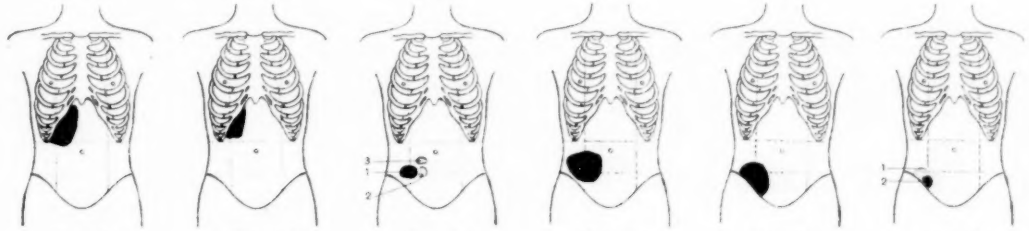
A recent paper by Weiss and Davis[1] recorded some important observations on a series of patients with localised thoracic or abdominal pain. These authors found that infiltration of the skin over the painful area with novocain caused abolition or diminution of the pain, and they make the remarkable claim that their findings afford experimental proof of the truth of Mackenzie's viscero-sensory reflex theory of referred pain. Their observations and the theoretical deductions that they based upon them seemed to me to be of such importance as to demand a critical investigation. The paper that follows describes a series of cases investigated in a similar manner to those of Weiss and Davis, and attempts, in the light of the results obtained, to assess the validity of their conclusions.

In this investigation, as in that of Weiss and Davis, the localised area in which the pain was felt was infiltrated with novocain as closely to the skin as possible, the deeper layers of subcutaneous tissue not being injected. But whereas they used a solution of 2 per cent. novocain I have thought it safer, in view of the wide area of skin infiltrated in some cases, to employ 1 per cent. novocain, to which a little adrenalin has been added. The object kept in view was to ascertain the effect of the infiltration in each case upon (1) the spontaneous pain, (2) the pain felt on coughing, (3) the objective cutaneous hyperalgesia as tested by light pinching of the skin, and (4) the deep tenderness and associated muscular rigidity. In this way I have attempted to obtain more precise objective findings than Weiss and Davis, who only mention such factors as deep tenderness and muscular rigidity in a few of their cases.

Only such patients as had distinctly localised pain and whose mental condition allowed their willing coöperation were investigated.

FIG. 1. FIG. 2. FIG. 3. FIG. 4. FIG. 5. FIG. 6.



(Case 1.) (Case 2.) (Case 3.) (Case 4.) (Case 5.) (Case 6.)

In Figs. 1, 2, 3, 4, and 6 the black represents an area of pain, deep tenderness, and rigidity; in Fig. 5 it represents an area of localised tenderness. Fig. 3 shows (1) the original area of pain, deep tenderness, and rigidity; (2) the area to which pain migrated after area (1) was infiltrated; and (3) the area to which it further migrated after infiltration of area (2). Fig. 6 shows (1) an area of cutaneous hyperalgesia; and (2) an area of pain, deep tenderness, and rigidity.

Observations.

CASE 1. *Acute obstructive cholecystitis*—Female, aged 64. Sudden onset of acute epigastric pain 24 hours before admission. The pain had settled down to the right hypochondrium, going through to the back. No shoulder-tip pain. History of two similar attacks recently. On admission: Temperature 101° F.; pulse-rate 100. Spontaneous pain in right hypochondrium and angle of right scapula. The pain in front was worse on coughing. Cutaneous hyperalgesia in shaded area (Fig. 1.) Deep tenderness and rigidity in shaded area. Enlarged gall-bladder vaguely palpable. The shaded area was infiltrated subcutaneously with 1 per cent. novocain until completely anæsthetic to pinprick. The spontaneous pain had now disappeared. On coughing the patient felt some pain, but less than before infiltration. Cutaneous hyperalgesia absent. On deep pressure she "couldn't feel much difference" from the tenderness before infiltration, nor could any diminution of rigidity be detected. Operation: Spinal anæsthetic with stovaine-glucose. Gall-bladder very distended, with patches of green gangrene on fundus, and a small stone impacted in cystic duct. Cholecystectomy.

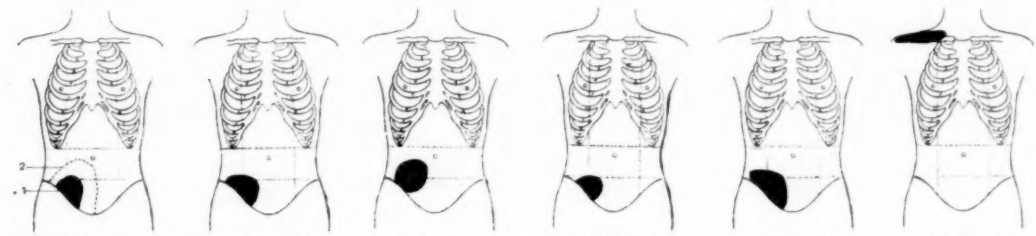
CASE 2. *Acute obstructive cholecystitis.*—Male, aged 37. Onset of acute pain in right hypochondrium 12 hours before admission. On admission: Spontaneous localised pain, deep tenderness, and muscular rigidity in shaded area (Fig. 2). No cutaneous hyperalgesia. The area of pain was infiltrated with 1 per cent. novocain till anæsthetic to pinprick. States that pain has now disappeared. On palpation muscular rigidity seems perceptibly less. Patient states that deep tenderness is still present, but "nothing like so tender as it was." Operation: Acutely inflamed distended gall-bladder with solitary stone, the size of a walnut, impacted in its neck. Cholecystectomy.

CASE 3. *Acute appendicitis.*—Female, aged 26. Onset of acute pain 26 hours before admission. Pain central at first, shifting to right iliac fossa. On admission: Spontaneous pain, worse on coughing, in right iliac fossa. No cutaneous hyperalgesia. Deep tenderness and moderate rigidity in same area as pain (Fig. 3). The area of skin over deep tenderness was infiltrated with novocain till anæsthetic to pinprick. Patient was then asked to cough, and said she now felt the pain, not in the anæsthetised area, but nearer the midline. This more medial area was then infiltrated, and on coughing again some pain was felt a little higher up. Deep tenderness was now tested, and was "not so tender as before." Operation: Appendix covered with plastic lymph and curled up below cæcum. It was not perforated.

CASE 4. *Acute perforated appendix with localised abscess.*—Female, aged 32. Acute onset four days before admission. On admission: Localised pain in right iliac fossa, much worse on coughing. Cutaneous hyperalgesia well marked in shaded area (Fig. 4). Deep tenderness in same area, and some muscular rigidity. The skin was infiltrated with novocain, till anæsthetic to pinprick. Spontaneous pain had now disappeared. Pain on coughing still present, but definitely less. Deep tenderness still present, and patient could not appreciate any diminution in intensity. Operation: Spinal anæsthesia. Appendix in retrocæcal fossa, gangrenous and perforated, with abscess tracking into right lateral paracolic groove.

CASE 5. *Acute appendicitis with localised abscess.*—Male, aged 23. Onset six days before admission. On admission: Localised tender mass in right iliac fossa (Fig. 5). No spontaneous pain, or pain on coughing. No cutaneous hyperalgesia. The skin was infiltrated with novocain over

FIG. 7. FIG. 8. FIG. 9. FIG. 10. FIG. 11. FIG. 12.



(Case 7.) (Case 8.) (Case 9.) (Case 10.) (Case 11.) (Case 13.)

Fig. 7 shows (1) an area of pain, deep tenderness, and rigidity; and (2) an area of cutaneous erythema. Fig. 8 shows an area of pain, deep tenderness, and rigidity, while Figs. 9–11 also show areas of pain and deep tenderness. Fig. 12 illustrates Case 13, a case of duodenal ulcer, and indicates the position of the pain in the right shoulder-tip.

tender area till anæsthetic to pinprick. On deep pressure patient at first stated that tenderness over mass was diminished, but when pressure was increased he doubted whether there was any real difference as compared with initial tenderness. Operation: Gangrenous appendix with localised abscess wrapped round by infiltrated omentum.

CASE 6. *Acute appendicitis with localised abscess.*—Female, aged 19. Onset of acute epigastric pain 21 hours before admission. On admission: Sharp spontaneous pain in right iliac fossa, worse on coughing. Area of deep tenderness and rigidity, with smaller area of cutaneous hyperalgesia (Fig. 6). The skin over area of deep tenderness was infiltrated till anæsthetic to pinprick. Cutaneous hyperalgesia and spontaneous pain had now disappeared, but pain on coughing still present, and deep tenderness and muscular rigidity also present. Patient stated that deep tenderness was less than before infiltration. This could not be confirmed by any change in the rigidity. Operation: Collection of pus in contact with parietal peritoneum just above middle of Poupart's ligament. Appendix hanging over brim of pelvis and perforated near tip. Uterus two months pregnant.

CASE 7. *Acute obstructive appendicitis with gangrene.*—Male, aged 18. Onset of epigastric pain 36 hours before operation. Pain shifted after a few hours to right iliac fossa. First attack. On admission: Skin erythematous from use of hot-water bottle. No spontaneous pain, but sharp pain in shaded area on coughing (Fig. 7). Cutaneous hyperalgesia present, but discounted on account of erythema. Marked deep tenderness and rigidity in shaded area. The shaded area was infiltrated with 40 c.cm. 1 per cent. novocain and adrenalin till anæsthetic to pinprick. Patient was then asked to cough, and said that he still felt pain "just the same as before." On deep pressure tenderness was still felt, but he said "I don't think it is quite so bad as before." Rigidity was unchanged. Operation: Appendix hanging over brim of pelvis. Hard concretion obstructing it one inch from tip, and part distal to this gangrenous but not yet perforated. There was a small amount of fluid round the appendix.

CASE 8. *Acute appendicitis.*—Male, aged 34. Onset of acute pain in epigastrium 20 hours before operation. After a few hours this pain disappeared, and sharp localised pain in right iliac fossa began. Two previous milder attacks. On admission: Slight spontaneous pain in right iliac fossa while lying still; much more marked on coughing. The initial epigastric pain had quite disappeared. No cutaneous hyperalgesia. Very marked rigidity and deep tenderness in shaded area (Fig. 8). The shaded area was infiltrated subcutaneously with 1 per cent. novocain until anæsthetic to pinprick. The slight spontaneous pain could not now be felt, and on coughing the sharp pain noted before the infiltration was not felt at all. On palpation there was no perceptible diminution in the muscular rigidity, nor in the associated deep tenderness. Operation: Acutely inflamed appendix with tip on outer side of cæcum. Not perforated.

CASE 9. *Acute appendicitis.*—Female, aged 12. Onset with central epigastric pain 45 hours before operation. First attack. On admission: Slight spontaneous pain in right iliac fossa, worse on coughing. Hyperalgesia of skin and deep tenderness in shaded area (Fig. 9), but not much rigidity. No tenderness or pain in back of loin. The skin was infiltrated with novocain till anæsthetic to pinprick. Spontaneous pain and pain on coughing now disappeared. Hyperalgesia was absent. Pain on deep pressure was still present, though she stated it was distinctly less than before infiltration. Operation: Appendix curled up behind lower ileum, which protected it from immediate contact with anterior parietes. Acutely inflamed, but not perforated.

CASE 10. *Acute appendicitis.*—Female, aged 35. Onset 24 hours before operation, with central pain, shifting to right iliac fossa. On admission: Spontaneous pain, not very severe, in shaded area (Fig. 10). Marked pain on coughing felt in same area. No cutaneous hyperalgesia. Deep tenderness limited to shaded area. Little muscular rigidity. The shaded area was infiltrated with novocain till anæsthetic to pinprick. Spontaneous pain was now "much less." Pain on coughing also "much less." Pain on deep pressure still marked, but "rather less tender." Operation: Kinked and swollen appendix, distended with pus, in retrocæcal fossa. No perforation.

CASE 11. *Acute salpingitis.*—Female, aged 24. Onset of pain in right iliac fossa two days before admission. No initial central pain. No urinary symptoms. On admission: Cutaneous hyperalgesia marked in shaded area (Fig. 11). No spontaneous pain, but pain on coughing. Deep tenderness over same area as hyperalgesia. Little muscular rigidity. Temp. 100° F. Pulse 108. The area was infiltrated with novocain subcutaneously till anæsthetic. Pain on coughing abolished completely. Deep tenderness much less marked. Operation: Turbid fluid in right iliac fossa and pouch of Douglas with fibrin on coils of ileum in pelvis. Left tube was congested, and muco-pus was found escaping from fimbriated end.

Discussion.

Summarising the findings from these 11 cases, we note the following results of the subcutaneous infiltration with novocain:—

Spontaneous pain.—Present in 8 cases; complete relief, 6; partial relief, 2; unchanged, 0; not present, 3.

Pain on coughing.—Present, 9; complete relief, 3; partial relief, 4; unchanged, 2; not present, 1; not noted, 1.

Deep tenderness.—Present, 11; complete relief, 0; partial relief, 8; unchanged, 3.

Rigidity.—Present, 11 (4 slight); completely abolished, 0; diminished, 1; doubtful, 3; unchanged, 7.

It will be observed that the most striking positive effect was the abolition of the spontaneous pain, which occurred in six out of eight cases. The effect on pain felt on coughing was less marked, though still definite. On deep tenderness the effect was slight, and on muscular rigidity it was hardly appreciable. Hyperalgesia, when present, was abolished inevitably by the infiltration.

These results afford, on the whole, a striking confirmation of the experimental findings of Weiss and Davis, though the type of case selected in the two investigations was somewhat different. Thus Weiss and Davis include in their 25 cases 3 of angina pectoris, 7 of pulmonary disease with pleurisy, 1 of carcinoma of the œsophagus, 1 of gastric ulcer, 4 of cholecystitis, 2 of appendicitis, 5 of renal conditions, and 2 of salpingitis, while I have confined my attention to acute abdominal lesions that could be verified immediately by operation. But while my results go to confirm their very important observations, it is necessary to make some critical remarks about their theoretical deductions. They claim that the abolition of pain by cutaneous anæsthesia proves the truth of the theory of referred pain in visceral disease, which we owe to the late Sir James Mackenzie. "According to this view, painful sensations arise as a result of irritation to a viscus. Such irritation produces a play of nervous impulses, which pass from the irritated viscera *along the splanchnic nerves*" (the italics are mine), "to certain segments in the cord. The perpetual bombardment of this cord segment with visceral impulses gives rise to an 'irritable focus' in the cord. The normal afferent impulses arising from the skin, muscles, and peripheral structures which traverse this segment now enter a cord region which is abnormally irritable. These normal impulses under such conditions give rise to painful sensations which are referred to the peripheral structures." But it cannot be admitted that these experiments prove the truth of the above viscero-sensory reflex theory of referred pain, any more than they prove the truth of my alternative theory of peritoneo-cutaneous radiation. In a paper on abdominal pain as exemplified in acute appendicitis[2] I have brought forward evidence for the view that the localised pain in the right iliac fossa in acute appendicitis (unlike the initial epigastric pain, which is a pure visceral pain), results from the stimulation of the exquisitely sensitive parietal peritoneum, and that the afferent splanchnic nerves from the appendix are not in any way concerned in its production. A reference to Figs. 13 and 14, in which these two conflicting theories of referred pain are represented diagrammatically, will show at a glance that the experiments under discussion have a precisely equal validity in the case of each theory. They no more prove one theory than they prove the other. But they may logically be held to prove that *either* the one theory *or* the other is the true explanation of referred pain.

Weiss and Davis do not appear to have taken into consideration the theory of peritoneo-cutaneous radiation at all when discussing the results of their investigations. They do make the comment, when discussing their cases of pleurisy: "It is to be remembered, also, that pain of pleural origin may be partly due to the direct sensitivity of the parietal pleura. It

is recognised that the parietal pleura receives direct nerve-supply from the intercostal nerves." But the conception of a pleuro-cutaneous radiation of pain receives no attention at all. Yet I believe that their experiments afford as much proof of pleuro-cutaneous radiation of pain in pleurisy as of a viscero-sensory reflex from the afferent splanchnic nerves of the lung.

Two Conflicting Theories.

We have now arrived at a point in the argument where the experiments of Weiss and Davis, and those recorded above, leave us unable to decide between the relative claims of the two conflicting theories of referred pain—viz., the viscero-cutaneous reflex theory and the peritoneo-cutaneous (or pleuro-cutaneous) radiation theory. What these experiments prove, no more and no less, is that one or other theory is true. (It is so obviously improbable that *both* theories are true, that I do not consider that possibility in the present discussion.)

In attempting to find a method by which the merits of my theory of peritoneo-cutaneous radiation could be put to a more convincing experimental test, I naturally thought of the peculiarly striking form of referred pain in the shoulder-tip area associated with painful stimulation of the sensory fibres of the phrenic nerves in the peritoneum (or pleura) lining the diaphragm. I have already [3] drawn attention to the invariability with which the pain in the shoulder-tip area is felt when the under surface of the diaphragm is stimulated by an irritating fluid, as in perforation of an ulcer, or when, under spinal anæsthesia, a swab is brought into contact with the under surface of the diaphragm. It was, in fact, mainly from a study of

FIG. 13.

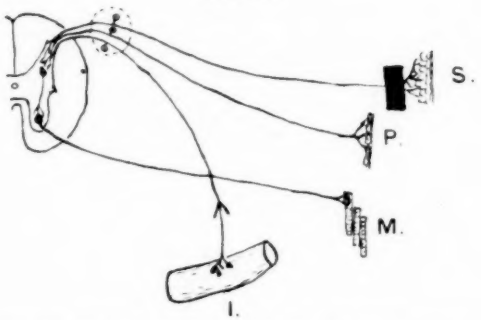


Diagram to illustrate Mackenzie's theory of viscero-sensory and viscero-motor reflex, and the effect, according to this theory, of cutaneous anæsthesia. In this figure and Fig. 14 S = skin; P = parietal peritoneum; M = muscles of abdominal wall; and I = intestine or appendix.

this shoulder-tip pain that I elaborated my theory of peritoneo-cutaneous radiation. Pain localised to the supra-acromial region, resulting from irritation below the diaphragm, would provide exactly the test that we require, since all question of the agency of splanchnic nerves can there be set aside. It is universally admitted that the painful stimulus passes up the sensory fibres of the phrenic nerve derived from the third, fourth, and fifth cervical segments, and that the pain is felt, not in the region of the diaphragm, but in those areas of skin over the shoulder supplied by the descending cervical nerves, which originate from the same cervical segments of the cord. The "irritable focus" theory is one possible explanation of this radiation of pain. According to this theory the normally silent afferent impulses from the cutaneous nerves over the shoulder become painful, though whether the "bombardment" from the parietal peritoneum affects the posterior horn cells or the cells of the posterior root ganglia it is not possible at present to be certain. If it could be shown, then, that infiltration of the shoulder-tip area of skin with novocain abolished shoulder-tip pain, very strong evidence in favour of the theory of peritoneo-cutaneous radiation would be forthcoming.

The following cases were investigated in order to obtain light on this question.

CASE 12. *Perforated duodenal ulcer.*—Male, aged 36. Perforated five hours before operation. On admission: Diffuse abdominal pain and rigidity with pain in the posterior part of the right shoulder-tip area, mainly over the suprascapular fossa. The shoulder-tip area was infiltrated

FIG. 14.

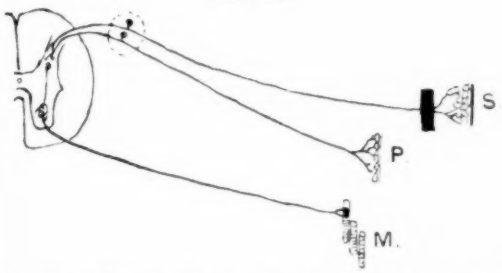


Diagram to illustrate theory of peritoneo-cutaneous radiation and peritoneo-muscular reflex, and the effect, according to this theory, of cutaneous anæsthesia.

with 1 per cent. novocain until anæsthetic to pinprick. Pain in the shoulder-tip area could no longer be felt. Operation: Spinal anæsthesia with stovaine-glucose. Perfect anæsthesia of abdominal wall extending to about the fifth dorsal segment. Right paramedian incision. While the abdomen was being opened, the patient volunteered information that he now felt pain in the tip of the left shoulder, but not in the right as before infiltration. A perforated ulcer was found in the first part of the duodenum, anterior wall, with a fair amount of extravasated fluid. The perforation was sutured. A moist swab was then passed up between the liver and the right dome of the diaphragm. At first no pain was felt. He then complained of some pain in the right shoulder-tip area. A similar swab passed up under the left dome of the diaphragm produced much more severe pain in the left shoulder immediately. This was repeated twice, and each time the difference between the two sides was most striking, judging both by the patient's statements and by the expression of his face. The left, unanæsthetised, shoulder was the seat of much more acute pain.

CASE 13. *Perforated duodenal ulcer.*—Male, aged 55. Sudden onset of severe pain 5½ hours before operation, when lifting some timber. Patient had had a perforated duodenal ulcer sutured 11 months before. On admission: Great pain in abdomen and in right shoulder-tip (Fig. 12). Diffuse board-like rigidity of abdominal muscles. Although the spontaneous right shoulder-tip pain was quite unusually severe there was no hyperalgesia of the skin in that area on pinching it lightly. The right shoulder-tip area was now infiltrated with 1 per cent. novocain till anæsthetic to pinprick. Patient now stated that pain in the right shoulder was "easier." Operation: Spinal stovaine-glucose. Good anæsthesia of abdominal wall. On opening the abdomen through a right paramedian incision a perforation was found in the first part of the duodenum, with a large collection of fluid in the right subhepatic and right anterior subphrenic spaces, partly shut off from the general peritoneal cavity by adhesions from the earlier perforation. The perforation was sutured. On swabbing between the right lobe of the liver and the right dome of the diaphragm patient felt some pain in the right shoulder-tip. On swabbing in a similar manner under the left diaphragm, where no irritating fluid was found, a much more agonising pain in the left shoulder-tip area was complained of. Posterior gastro-enterostomy was performed.

It was thus found that infiltration of the shoulder-tip area abolished the spontaneous shoulder-tip pain in Case 12, and gave partial, but very marked relief, in Case 13. The unusual severity of the shoulder-tip pain in Case 13, due to the adhesions which caused a localisation of most of the extravasated fluid to the space under the right dome of the diaphragm, must be borne in mind. But the most striking phenomenon in each case was the marked difference between the intensity of the pain in the two shoulders, when a painful stimulus in the shape of a swab was applied to both domes of the diaphragm in the process of cleansing the peritoneum. The difference was so

marked as to impress all the onlookers, while the patients commented on it days afterwards. It should be remembered that in each case the extravasation had been chiefly localised to the right subphrenic space, so that the sensory nerves on that side would presumably be in a more irritable condition. In spite of this, anæsthesia of the skin over the right shoulder-tip area produced great diminution of the referred pain as compared with the side that was not anæsthetised.

The fact that shoulder-tip pain was not abolished completely may be attributed to the fact that the descending cervical nerves from the third and fourth cervical segments supply sensory fibres to the acromio-clavicular joint as well as to the periosteum of the acromion process and clavicle. Since care was taken to make the subcutaneous injection as superficial as possible, these fibres would escape the action of the novocain, and this would account for such shoulder-tip pain as persisted.

It can be stated with the greatest confidence that none of the novocain solution was injected anywhere near the trunk of the phrenic nerve, so that a possible fallacy in the experiments—viz., anæsthesia of the phrenic nerve—need not be considered.

Peritoneo-cutaneous Radiation.

We find, then, in the above two crucial experiments that anæsthesia of the skin in the shoulder-tip area produces no less profound a modification of pain than we have found on similar infiltration over an inflamed appendix or gall-bladder. There is every reason to suppose that the mechanism of the anæsthesia, as of the production of pain, is exactly similar in the two cases. The sensitive parietal peritoneum lining the diaphragm has the same protective function as the peritoneum lining the anterior abdominal wall, with which it is continuous. Its sensory innervation is, in all respects, similar, save that an embryological accident has widely separated the subphrenic peritoneum from its corresponding skin area. It is this accident, if so it may be termed, which provides us with the opportunity of studying the protective mechanism. For, in the study of shoulder-tip pain, the problem is simplified in that no question of radiation or reflex through the afferent splanchnic nerves can be entertained. The pain is produced by a process of peritoneo-cutaneous radiation. Anæsthesia of the skin over the shoulder, by cutting off the normal afferent stimuli, profoundly modifies the sensation of pain, though the direct afferent path through the phrenic nerve to the brain remains open.

There is every reason to believe that the experiments of Weiss and Davis will find their true explanation along similar lines.

Evidence that I have already brought forward (loc. cit.) shows that the pain over an inflamed appendix is so accurately localised that it must be dependent on stimulation of the afferent nerves in the parietal peritoneum, and not of the afferent splanchnic nerves. Precisely the same reasoning holds good as regards the localised muscular rigidity and associated deep tenderness over an acutely inflamed appendix. They correspond accurately with the position in which the appendix happens to be lying, and in an early case, before perforation has widened the area of irritation, they may be used to predict the precise position in which the appendix will be found at operation to lie. A relatively slight degree of muscular rigidity and deep tenderness in a case of early acute appendicitis means that the appendix is shielded from the anterior parietal peritoneum either by occupying the retrocæcal fossa or by a covering provided by a thick omentum or the lower coils of the ileum. These precise indications of the site of an inflamed appendix are quite inconsistent with the theory of a viscero-sensory or viscero-motor reflex through the agency of the afferent splanchnic nerves from the appendix. But they are consistent with, and afford the strongest evidence for, the theory of peritoneo-cutaneous radiation and peritoneo-muscular reflex.

The condition of acute obstructive cholecystitis, due to impaction of a stone in the cystic duct or neck of the gall-bladder, which provided Cases 1 and 2 in the above series, affords evidence leading to the same conclusion. It is not uncommon in such a case for a progressive enlargement of the inflamed gall-bladder to occur, due to distension with muco-pus. If such a case is observed carefully at intervals of a few hours, the area of maximum pain, corresponding with that of muscular rigidity and deep tenderness, will be found to creep gradually lower as the gall-bladder becomes more distended, until it may be so low in the right abdomen as to give rise to difficulty in differentiating the case from one of acute appendicitis. The site of the maximum pain, tenderness, and rigidity must be determined by contact of the fundus of the inflamed gall-bladder with the parietal peritoneum. For, were the process a viscero-sensory and viscero-motor reflex, the maximum pain, tenderness, and rigidity would be constant in position, since they would be determined by the segmental splanchnic innervation of the gall-bladder.

If due weight be given to these arguments it will be found that these infiltration experiments, so far from supporting Mackenzie's viscero-sensory reflex theory, afford convincing support to the alternative theory of peritoneo-cutaneous radiation.

The question of pure visceral pain does not arise in these infiltration experiments, since all the cases dealt with showed accurately *localised* pain. While the existence of true visceral pain has been abundantly demonstrated by Hurst and others, it is a vaguely localised central pain, and is entirely unassociated with localised tenderness or rigidity. The pure visceral pain, which occurs in most cases of acute appendicitis for instance, is only present for the first few hours, and, though felt in the centre of the abdomen, is usually described by the patient as "all across." It would be quite impossible to carry out these infiltration experiments in that early stage, for one could not determine how wide an area of skin to inject, since the patient cannot localise the pain with any accuracy.

Weiss and Davis record in their paper observations on two normal subjects in whom localised pain was produced by distending the œsophagus with a balloon. Infiltration of skin with novocain in the region of the pain produced migration of the pain, with relief in the infiltrated area. It is not possible to criticise these observations satisfactorily, since such details as the dimensions of the apparatus used are not given. But it appears possible that the localised pain may have been due to pressure exerted through the walls of the œsophagus upon some branches of the intercostal nerves. Whatever the explanation may be, their results from these two cases are of much less significance than those already discussed, and cannot be held to invalidate the conclusions at which we have arrived.

Summary.

(1) In patients with *distinctly localised* abdominal pain subcutaneous infiltration of the painful area with novocain causes complete or partial relief of pain. (2) The contention that these observations afford direct experimental support for the viscero-sensory reflex theory of referred pain is criticised. (3) In patients with shoulder-tip pain from irritation of the peritoneum under the diaphragm, subcutaneous infiltration of the area in which the pain is felt causes complete or partial relief of pain. (4) These observations afford strong evidence in favour of the peritoneo-cutaneous radiation theory of referred pain as opposed to the viscero-sensory reflex theory.

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THE USES OF CHLORETONE.*

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I HAVE been fond of quoting a saying by a French physician that "what impresses one's colleagues is a correct diagnosis, what impresses the relatives is a good prognosis, but what impresses the physician himself is when any definite effect results from his treatment."

I want to say something about a comparatively new drug, which I believe to be the most potent remedy for several disorders hitherto treated by palliatives with but slight success. It may seem surprising to allude to a drug as new, which I have employed for perhaps a quarter of a century, but it is not yet old enough to be admitted to the Pharmacopœia and consequently is unknown to many. The drug is chloretone—chemically trichlor tertiary butyl alcohol, and physically a white coarse powder with a rather acrid taste, volatile and sparingly soluble in water, like camphor. It first came under my notice as a preservative in Parke Davis's solution of adrenalin. I employed this in the treatment of some cases of gastric ulcer, or rather erosion, to arrest hæmorrhage and was struck with the disappearance of the pain, hunger, and restlessness which ensued. This could hardly be attributed to the adrenalin, and later when I gave the chloretone alone I found that the effect was enhanced. It acted as an anodyne as well as a preservative—not only locally but as a general sedative when the dose was increased. Following this observation I was led to employ chloretone in a number of affections in which these attributes promised to be useful.

Sea-Sickness, Chorea, and Tetanus.

Perhaps the first trouble in which the anæsthetic and sedative effect of chloretone was employed was in the prevention of sea-sickness. So many means had been recommended before without success that the general public regarded with absolute incredulity any idea of a preventive or remedy in such circumstances. I am, however, quite convinced that, given a start of half an hour, five grains of chloretone will enable a person to complete a voyage of anything up to six hours without discomfort on the score of sea-sickness. This same applies to travelling by train or air which affects some people in the same way.

I recall an instance of a French lady who taught French in England and English in France and crossed the Channel perhaps four times a year. She was evidently a poor sailor, for she never escaped sea-sickness or expected to even on a calm day. I gave her some 5-grain powders of chloretone, and she made her first crossing in perfect comfort. Unfortunately, however, the spare doses had been wrapped in ordinary paper, and on the return journey, owing to evaporation, all had disappeared, and mal-de-mer asserted itself as before. The drug was later put up in gelatin capsules, and remaining available enabled her not only to accomplish the passage without upset, but even to go by the long route.

In another instance the journey to South Africa was accomplished—a matter of 18 days—by a judicious repetition of the dose.

I only mention these two early experiences for since then proprietary articles under the name of Zotos and Mothersill in which chloretone is the effective constituent have been advertised and widely used.

The sedative effect on the brain, indicated in these instances, suggested to me the probable value of the drug in chorea, which is dependent on disturbance originating in the cerebral cortex. In our archives is included a collection of 100 such cases treated only with chloretone. They were of varying intensity, age, and duration, just as admitted, and I will only quote you the final analysis which showed that the choreic movements were suppressed in an average of five days and the stay in hospital reduced to three weeks. This not only represents a marked reduction in the duration of the illness, but in addition an immense saving in nursing and the suffering of the patient by injury and loss of sleep and food through the violent and ceaseless movements. In these cases the chloretone was given in five or ten-grain doses dissolved in paraffin or cod-liver oil emulsion, and this larger dose continued over several days disclosed further effects of the drug, two of which I will mention as leading to wider uses. Full doses led to a condition of stupor resembling that present in encephalitis lethargica, in which the patient apparently slept day and night and required to be roused to take food—not, you may think, a desirable consummation, but a very blessed contrast in severe cases to the violent contortions and need for constant restraint to keep the patient in bed or from physical injury. The administration of the drug in moderate or small doses caused insensitiveness of the bladder amounting in some to retention of urine. Now this sedative effect on the central nervous system and bladder find useful application in other directions.

On one occasion, returning from the summer vacation, I found a boy in the ward suffering from tetanus. In spite of treatment he was having seizures every hour and the outlook was as hopeless as is usual in these cases. Recalling the effect of chloretone on some of the severer cases of chorea, I administered at once in an enema 20 grains dissolved with the aid of glycerin. He had one seizure only soon after, and then made a complete recovery. As you know, tetanus is fortunately not common, and I never had another opportunity of testing the remedy; but I am glad to put this on record as I have seen accounts since of fatal cases not treated in this way. If it only controls the symptoms it may give time for other remedies to act, which at present they have little chance to do.

Vesical Irritability: Whooping-cough.

With regard to the effect on the bladder, we have been used to the employment of buchu and hyoscyamus with inconspicuous results, though frequency of micturition is a very distressing condition. Even in average health an irritable bladder causes much inconvenience, and often entirely debars people so afflicted from social engagements. I once enabled the chairman of a medical meeting to get through a long morning while suffering from diarrhœa by giving him a teaspoonful of raw arrowroot, and I am sure that the practitioner who enables a patient to weather a lunch or tea party without inconvenience by the use of a five-grain capsule of chloretone will earn eternal gratitude.

I now come to small doses, the basis being a saturated solution in water (grs. 2½ to the ounce) comparable to camphor water. This solution with two drachms of 1–1000 adrenalin solution to the ounce proved of the greatest service in hundreds of cases of conjunctivitis resulting from irritant gas during the late war, subduing the irritation and reducing the hyperæmia. At the same time the escape by way of the lacrymal duct led to some loss of sensation in the nose and pharynx. Later this side issue suggested the use of chloretone in hay fever. Inhaled as a spray from an atomiser the solution immediately allays the symptoms, the effect lasting many hours, so that occasional repetition will carry the patient through the usually distressing period of early summer. As an antispasmodic in acute gastric flatulence, dysmenorrhœa, persistent hiccough, or the severe pain of shingles its effect is immediate and sure.

All this will hardly be believed, but it may be observed that none of the maladies referred to has responded to specific or known remedies; so one has quite a free hand to try something fresh. Having now perhaps strained credulity to the utmost, I will conclude by making the most outrageous statement of all—namely, that this dilute solution of chloretone in doses of one grain will cure whooping-cough in a week. I was recently consulted about a little girl of 3 causing great anxiety to her parents owing to

*Abridged from an emeritus lecture delivered at the Middlesex Hospital on Nov. 29th.

vomiting, sleeplessness, and rapid wasting resulting from the frequent violent paroxysms. One-grain doses of chloretone were given four times a day with immediate relief. After two days it was given only morning and night, and after the fifth day discontinued altogether as there was no further need, and there was no recurrence.

ACUTE DISSEMINATED ENCEPHALOMYELITIS FOLLOWING VACCINATION.

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AN unusual opportunity for continuous observation during life with a complete autopsy 17 hours after death makes this fatal case of so-called post-vaccinal encephalitis worthy of record.

The patient, a female aged 5, unvaccinated, who lived in Limehouse, was admitted to Mile End Hospital on June 1st, 1929, with pneumonia of four days' standing. She had had measles and chicken-pox in infancy, and in 1927 had an attack of pneumonia which left her with a "weak chest," for which she had since attended Victoria Park Hospital.

Her temperature was 103·6° F. The lungs showed a catarrhal pneumonia chiefly affecting the right middle lobe, but the heart and abdomen showed no abnormality. Two days later both upper lobes were involved, the child was very delirious, and meningism was noted. The fever settled by lysis by June 11th and convalescence was uneventful, the physical signs in the chest clearing rapidly. She was about to be discharged from hospital when, on June 23rd, another child, admitted to the ward on the previous day, developed the rash of small-pox. As a result, the infected ward was put in quarantine, and on June 26th 15 contacts, nurses and children, were vaccinated. The same batch of Government lymph was employed for all these vaccinations, two insertions being made in the left arm and half a tube of lymph (undiluted) being used in each case.

The patient had a temperature of 100° on the fifth day after vaccination and an evening temperature above 99° on the seventh and ninth days; thereafter the temperature was normal until the evening of the thirteenth day (July 9th). During this period the child appeared well and lively.

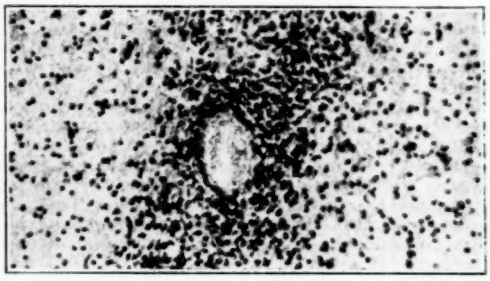
About bedtime on the evening of the thirteenth day the child was noticed to be rather excited, running about and striking other children. Her temperature was 100°, but she was not complaining. She was put to bed and given an aperient. The following morning she complained of headache and pain in the limbs. Her temperature was then 101·6°, pulse-rate 110, and respiration-rate 24. She passed urine naturally about this time. At noon the child told the nurse that she had wetted the bed; this was the only occasion on which she was incontinent. Fifteen minutes later she had become drowsy, though easily roused; her face was flushed and examination of the throat was negative. At 4.30 P.M. she accepted a drink; this was the last time she spoke or took food. It was now noticed that a stream of saliva was running from her mouth.

When examined at 5.45 P.M. she was lying on her back with the head turned to the right and saliva running freely. The face was grey, with slight cyanosis, and the cheeks were puffy, although the parotids were not palpably enlarged; she was very drowsy and difficult to rouse. There was ptosis of the right upper eyelid; the pupils were round, central and equal, and contracted briskly to light. Reaction to accommodation could not be tested. There was no squint or nystagmus. The fundi showed dilated veins in the neighbourhood of the discs but were otherwise normal. The neck muscles were stiff but there was no head retraction. The cheeks gave slight muscular response to pin-prick, more marked on the left side; there was occasional slight twitching of the left angle of the mouth, doubtful weakness of the right side of the face, and definite weakness of the right arm and leg. The abdominal reflexes were sluggish, especially the lower ones. The knee-jerks and ankle-jerks were brisk and there was bilateral ankle-clonus, not well sustained. The plantar response was extensor with all the toes on both sides, and Kernig's sign was present on the left side. Tache cérébrale was present. There were two vaccination crusts, half an inch in diameter, in the left deltoid region, with a slight surrounding fading redness. No glands were palpable in the left axilla, nor was there general enlargement of lymph glands. The heart, lungs, and abdomen showed no abnormality.

Eight ounces of urine were removed by catheter; it contained a trace of albumin but there was no organised deposit. A culture grew *B. coli communis*. Lumbar puncture was performed under light anæsthesia and 40 c.cm. of clear, colourless fluid dripped away. This contained 0·8 small lymphocytes per c.mm.; it gave normal reduction and there was no increase of protein.

The drowsiness became steadily deeper during the evening, passing into coma. When seen the following morning (July 11th, fifteenth day) the child was deeply comatose and there was still ptosis. The pupils reacted briskly to light, ptyalism had ceased, and the tongue pointed to the right. There was now no difference in the muscular power of the two sides of the body, but the tone of the limb muscles was diminished. The knee-jerk was absent on the right side and just present on the left. There was no ankle-clonus; the right plantar response was definitely flexor and the left gave a doubtful Babinski. The temperature was 101·4°, the pulse-rate 140, and the respiration-rate 68. The child was again catheterised, though the bladder was not distended.

FIG. 1.



Low power view of a vessel of the subcortical white matter showing dense extra-adventitial infiltration.

At 5 P.M. her colour was much worse. Cheyne-Stokes respiration was established and muco-pus, which collected at the back of the throat, was brought up from time to time. She was sweating profusely. Otherwise the physical signs had not altered.

At 6 P.M. the temperature was 102·4°, the pulse-rate 160, and the respiration-rate 62. The pupils were still small, round and equal, but they now responded very sluggishly to light. Lumbar puncture was again performed and 45 c.cm. of clear, colourless fluid dripped away. However, there was no improvement and she died at 7 P.M. Her bowels had acted on July 9th; from then on she was constipated.

It is noteworthy that the only other person who showed unusual signs was a girl aged 5, previously unvaccinated, who had been vaccinated with the other half of the same tube. This child was convalescent from furunculosis of the right external auditory meatus. She had previously suffered from chicken-pox and measles. On the fifth day after vaccination her evening temperature rose to 100°, and there was an evening rise above normal on the seventh, eighth, ninth, tenth, thirteenth, and fourteenth days. During this period the child appeared to be quite well. On the morning of the fifteenth day she vomited and her temperature rose to 102°; she was definitely drowsy. She was cold-sponged, and when seen at noon her temperature was 103°, although she was no longer drowsy and no abnormal physical signs could be made out. The fever subsided next day and nothing further ensued. When seen again in October, 1929, she was quite well.

Autopsy.

The only macroscopic abnormality of the nervous system was intense congestion of the small vessels of both grey and white matter. The bulk of the brain was fixed in 10 per cent. formol-saline; after embedding in celloidin, sections were stained with hæmatoxylin and van Gieson and by Nissl's method, while frozen sections were stained for fat and by the Bielschowsky method for neurofibrils. Tissue fixed in formol bromide was utilised for Penfield's modification of Hortega's method for microglia. Zenker-fixed material was embedded in paraffin and stained by Giemsa and Panchrom. Finally, tissue was mordanted and stained by the Weigert-Pal procedure for myelin sheaths.

Character of Lesions.—In stained sections the lesions can quite easily be seen with the naked eye. In the white matter the changes occur in strict associa-

tion with the blood-vessels, of which some are affected and some escape in any given area; in the grey matter this association may not at first sight appear obvious. The essential lesions are: (1) perivascular infiltration, and (2) extra-adventitial infiltration with demyelination of the area immediately surrounding the vessel. Perivascular infiltration, consisting of a collection of inflammatory cells in the Virchow-Robin spaces, varies in degree in different vessels. In some only a few scattered cells are present; in others a cuff, several cells deep, extends round the whole circumference of the artery or vein. The constituent cells are mainly large and small lymphocytes with a few plasma cells and, in some regions, occasional polymorphonuclear leucocytes. Extra-adventitial infiltration (i.e., a collection of cells in the nervous tissues immediately outside the vascular adventitia) is associated with and is presumably the reaction following destruction of the myelin sheaths over a wider or narrower zone around the vessel. Where closely adjacent vessels are affected their respective zones of infiltration and demyelination may coalesce. As is clearly seen in sections stained by Penfield's method, the majority of the cells of this infiltrate are microglial in nature; in sections stained by the Nissl method their cell-bodies, irregular in outline, appear reticulated or finely vacuolated. Appropriate methods show them to contain numerous fine fatty granules, but typical fully formed granular corpuscles are wanting. The nuclei of these cells are very polymorphic and assume a great variety of grotesque forms; some have to be distinguished from polymorphonuclear leucocytes, to which they bear a superficial resemblance. Glial cells, some with slightly enlarged bodies and others with large pale nuclei, are also present. Where the perivascular infiltrate is very dense there may be some overflow of lymphocytes into the immediately adjacent nervous tissue; in many areas a few polymorphonuclear leucocytes are mingled with the other infiltrating cells and may be found at some distance from the vessel wall. Occasional wander cells are present. Among all types of cells nuclear degeneration in the form of pyknosis and karyorrhexis is very common and nuclear debris is abundant in almost every region.

While in the white matter the limits of the extra-adventitial infiltrate are more or less sharply demarcated at a level where demyelination ceases, in the cortex and other areas of grey matter this infiltrate appears to be less dense but more extensive, and its peripheral limits are hard to define. Such areas cut tangentially appear to be unconnected with the vessels and suggest a localised overgrowth of microglia; many sections may have to be cut before the affected vessel comes into view. Weigert-Pal preparations show that, here as elsewhere, destruction of such myelinated fibres as may be present has occurred. In sections stained by the Weigert-Pal method the zones of perivascular demyelination are well demonstrated. In some cases the process is complete, but in others fragments of the sheaths originally present are still visible and stain more intensely than the normal myelin. At the periphery of the demyelinated area the persisting myelin sheaths are greatly distorted or ballooned and globules of free myelin are more numerous. The amount of free myelin, however, together with that of the fatty products of its degeneration seen in hæmatoxylin and Scharlach preparations, does not nearly correspond to the extent of the demyelination; there is also a striking absence of anisotropic substances in the fully demyelinated areas, and it seems that not only is the removal of waste fatty products accomplished with abnormal rapidity but that much of the myelin disappears without breaking down into the doubly refractile lipoid materials seen in the slower process of tract degeneration.

FIG. 2.

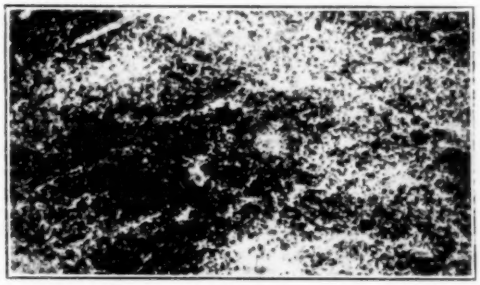
High power view of a less severely affected vessel to show the polymorphic appearance of the infiltrating microglial cells.

Even in the zones of complete demyelination a number of axis-cylinders persist, although the total is far below the number normally present. Of those which remain many are thickened and stain more intensely than normal, while fusiform swellings are present at intervals along the course of others. The nerve-cells are everywhere surprisingly well preserved; even when involved in a dense extra-adventitial infiltration their appearance is little altered. Thus in the medulla the lesions are almost unilateral and, while the cells of the twelfth nerve nucleus of one side are quite normal, on the other side they are involved in an extensive zone of infiltration and myelin destruction; even so, they show only minor changes in the form and colorability of their Nissl bodies.

Distribution of Lesions.

Cerebral Hemispheres.—Lesions are numerous throughout the white matter, in the cerebral cortex, and in the grey nuclei at the base; all of the many areas examined show some affected vessels. Both arteries and veins are involved, but in some regions particularly the latter. Perivascular infiltration may exist in the cortex in the absence of extra-adventitial changes, but elsewhere it is associated with the characteristic perivascular demyelination. Small hæmorrhages into the demyelinated areas are sometimes seen; no reaction is seen in the surrounding tissues, a fact which suggests that they occurred shortly before death or that they may possibly be attributed to rupture at autopsy of the greatly congested vessels. In a few places, particularly in the deeper parts of the sulci, the meninges contain small collections of inflammatory cells similar to those in the perivascular spaces.

FIG. 3.



Weigert-Pal preparation of spinal cord, showing zones of demyelination around the vessels radiating through the white matter.

Cerebellum.—Numerous vessels in the white matter show perivascular infiltration and zones of demyelination.

Brain-stem.—Severe in the midbrain and pons, the changes increase to a maximum in the upper part of the medulla, then decrease in intensity as the cord is approached. At all levels they are very much more marked on the right side; the central parts of the substantia reticularis and the grey matter in the floor of the ventricular system are severely involved. Perivascular infiltration is often intense and the extra-adventitial zones of adjacent vessels often coalesce. Arteries and veins alike are affected. The meninges are normal.

Spinal Cord.—A feature of the disease in the cord is the severe involvement of one segment and the entire freedom from lesions of a closely adjacent segment. Thus, while the first cervical segment is quite normal, the third cervical shows severe changes; the first lumbar segment is severely involved and the last lumbar segment and sacral region are free from disease. A second and unusual feature at almost all levels is the striking limitation of the lesions to the right half of the cord, the other being wholly or almost wholly spared; at the same time the grey matter in many segments is more severely affected than the white. In the middle and lower cervical, upper dorsal, and upper lumbar regions the unilateral distribution of the lesions is absolute. The vessels radiating through the white matter, particularly of the anterior and lateral columns, show considerable perivascular and extra-adventitial infiltration with a wide zone of perivascular demyelination. The large vessels of the grey matter are similarly affected and there is considerable diffuse infiltration of the anterior or posterior horns or both. There is a narrow zone of demyelination at the surface of the cord in the lateral column. The meninges are normal. In the lower dorsal region the lesions, though more marked on the right side, are not absolutely confined to it; on the left side the lesions affect only the white matter, while on the right

side both white and grey matter are involved. There is considerable perivascular infiltration of the vessels of the anterior fissure, with a narrow zone of demyelination along both lips of the fissure.

Intervertebral Ganglia and Peripheral Nerves.—No changes were detected in the lower cervical ganglia or brachial plexus of either side.

Other Organs.—The lungs, which macroscopically were greatly congested, show numerous small areas of early broncho-pneumonia. The axillary lymph glands on the left side show an inflammatory reaction of moderate degree. The heart, liver, spleen, pancreas, kidneys, submaxillary and parotid glands, stomach, and intestines appear normal. One calcified lymph gland was present in the mesentery. The vaccinated area appeared normal for the period following the inoculation; there was no sign of sepsis and the blood was sterile on culture.

The clinical picture presented by this fatal case of encephalomyelitis is in accordance with the descriptions of similar cases occurring after vaccination published by Turnbull and McIntosh (1926), Bijl (1928), Rivers (1929) and others, and with those cases following acute infectious diseases—e.g., measles (Greenfield, 1929), or occurring spontaneously (Brain and Hunter, 1929). The overwhelming character of the infection was very striking. Rivers notes two instances in which, after vaccination, two children in the same family developed the symptoms of encephalomyelitis on the same day. It seems possible that the second of our cases may have had an abortive attack of encephalitis, although there is no apparent reason why this one tube of lymph should have contained anything not present in the rest of the batch.

Of the remaining 13 individuals vaccinated, two were children, aged 5 and 4 respectively and previously unvaccinated, who had recently recovered from pneumonia. In them, vaccination produced no unusual effects. In all the cases a "brisk take" was noted on inspection on July 3rd. At no time did the vaccinated arm in the fatal case differ in appearance from the arms of the others vaccinated.

Histologically the lesions in the present case conform closely to the descriptions given by Turnbull and McIntosh (1926), Lucksch (1926), Bouman and Bok (1927), Perdrau (1928) and others, of the disseminated encephalomyelitis which has during recent years occurred from time to time as an early sequel to vaccination. An unusual feature of the present case, and one to which we have been unable to find reference in the literature, is the almost complete limitation of the cord lesions to one-half of the cord. In view of the alleged direct association between vaccinia and the nervous disease, it is perhaps a not unimportant fact that it was the right half of the cord which was affected—whereas vaccination had been performed on the left arm—and that no lesions were detected in the brachial plexus or intervertebral ganglia on the vaccinated side. In their essential characters the lesions do not differ from those in the similar cases following measles (see Greenfield, 1929) and certain other infective states, or arising during the course of antirabic treatment; one of the writers (E. W. H.) is at present investigating such a case, to be published shortly, occurring after small-pox. Any investigation into the ætiology of this "post-vaccinal encephalitis" must therefore take into account the occurrence of similar complications in the other acute infective fevers and aim at discovering a common factor responsible for the production of identical histological lesions in a number of very different conditions.

We are indebted to Dr. R. L. Guthrie, coroner for East London, for permission to publish this case.

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Clinical and Laboratory Notes.

DILATATION OF THE AURICLES RESULTING FROM HEART-BLOCK

AND PRODUCING PRESSURE SYMPTOMS.

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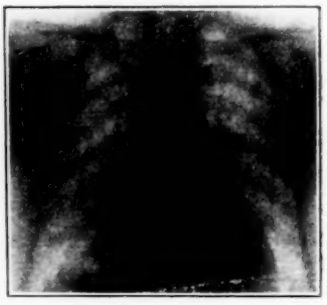
IN THE LANCET of Dec. 12th, p. 766, F. J. Bach and T. S. Keith describe a case of enlargement of the left auricle causing pressure on, and obstruction of, the left main bronchus and quote a series of cases described by various authors. Pressure on the œsophagus and paralysis of the left recurrent laryngeal nerve have also been described as rare complications of auricular dilatation. The case now described is of interest from two points of view; for in the first place it affords an example of dilatation of the auricle producing pressure symptoms of such a nature that a mediastinal tumour was suspected; and secondly, it illustrates a mechanism whereby auricular dilatation may be produced apart from valvular lesions and apart from auricular fibrillation, the two most commonly recognised causes. Inasmuch as the patient did not succumb, post-mortem confirmation of the findings and conclusions is lacking, but the clinical and instrumental findings appear sufficiently clear to warrant the conclusions drawn.

Report of the Case.

A. B., aged 48, was a healthy man until the onset of his present symptoms; he had never had acute rheumatism, chorea, or sore-throats, and had not previously suffered from cardiac symptoms. His family history was negative. About January, 1929, he began to have dyspnœa on exertion and cough, with occasionally slight œdema of the ankles at nights. In March he began to have difficulty in swallowing solid food, and stated that his voice had altered in character; he noted that the lower part of his neck was much swollen. He was sent into hospital with a tentative diagnosis of mediastinal tumour.

FIG. 1.



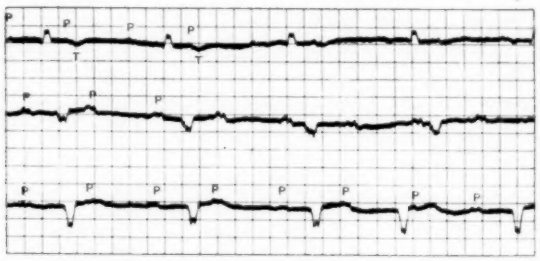
Radiogram showing enlarged pear-shaped cardiac shadow suggestive of auricular dilatation.

On admission his lips were cyanosed; there was no œdema of the legs. His speech was normal, and there was no evidence of laryngeal paralysis. There was considerable œdema of the lower part of the neck, and marked distension and pulsation of the veins in this region. He experienced difficulty in swallowing solids. The apex-beat was not visible and scarcely palpable; cardiac dullness was increased upwards to the second left space, and slight dullness was also noted in the second right space close to the sternum; the right border reached 1 inch from the midline in the fourth space, but only ¾ inch in the fifth space, the normal angle between the right border of cardiac dullness and the upper border of hepatic dullness being maintained; the left border was 4½ inches from the midline in the fifth left space. The sounds were infrequent (40 per minute), with occasional extrasystoles; a third sound could be heard periodically during the diastolic interval, sometimes occurring early, sometimes in mid-diastole. The sounds were faint at all areas, almost inaudible at the aortic; no murmurs were heard in any area; the second sound at the pulmonic area was relatively accentuated and intoned. The pulse was regular apart from occasional extrasystoles, and of moderate volume; the volume in the left radial was slightly less than

in the right; the arteries were not palpable and the blood pressure was not raised. Apart from occasional rhonchi at each base the lungs were normal. The liver and spleen were not palpable, and there was no albuminuria. The pupils were equal.

The Wassermann reaction was negative. A radiogram of the chest (Fig. 1) shows an enlarged, "pear-shaped" cardiac shadow suggestive of auricular dilatation; there is no evidence of a mediastinal tumour nor aneurysm. An electrocardiogram (Fig. 2) shows an auricular frequency of 86 with slight sinus irregularity; the P wave is broad and notched resembling that seen in mitral stenosis. 2–1 block is present throughout the portion of the tracing shown in the diagram, the ventricular rate being 43, but a further portion of tracing showed occasionally two successive auricular beats reaching the ventricles; another occasional feature was the occurrence

FIG. 2.



The electrocardiogram.

of left ventricular extrasystoles in pairs. The ventricular responses show changes characteristic of a further intraventricular block, approximating to a complete block of the right branch of the auriculo-ventricular bundle. The total duration of ventricular systole is prolonged occupying 0·52 sec.; the P–R interval in those beats in which auricular contractions excite ventricular responses varies from 0·2 to 0·4 sec.; thus it comes about that the total duration of cardiac systole (from the commencement of P to the termination of T) varies from 0·72 to 0·92 sec.; and since the interval between successive auricular beats averages approximately 0·7 sec., alternate auricular beats occur before the termination of the preceding ventricular systole in the majority of cycles. The significance of this feature will be referred to presently.

Course of Illness.—With the lapse of time and confinement to bed the patient's symptoms gradually improved, and four weeks later he was feeling comfortable in bed; he no longer had dysphagia; the œdema of the lower part of the neck had entirely disappeared, and the distension and pulsation of the veins was very much less noticeable. In the condition of the heart itself no change was noted; an electrocardiogram showed the same features as before, with an auricular rate of 98 and ventricular rate of 49; there were still occasional extrasystoles in pairs, but now of right ventricular instead of left ventricular origin. After another three weeks he was allowed up gradually, and in another month he was able to go home: he was able for mild exertion without much dyspnœa but still had occasional slight œdema of the feet at night if he stayed up too long; the cardiac dullness remained unchanged, the sounds had improved slightly in intensity, but the block was still present; the pressure symptoms had entirely disappeared.

Comments.

Apart from the transient dysphagia which was presumably the result of pressure of a dilated auricle on the œsophagus, this case is of interest in view of the mechanism whereby the auricular dilatation appears to have been produced. Dilatation and hypertrophy of the left auricle as a result of mitral stenosis is well recognised; in Bach and Keith's case the physical signs during life were those of mitral stenosis, and although there was no narrowing of the mitral orifice post mortem—in fact, it was actually widened—the changes described as shown by the mitral cusps and chordæ tendineæ appear to be those of an early stage in the development of a certain type of stenosed mitral valve, and are at least suggestive of a considerable degree of mitral incompetence. Apart from valvular lesions, dilatation of both auricles is the rule in auricular fibrillation and in many cases of auricular flutter, where effective contraction of the auricles has ceased, and the chambers become passively distended. The present case, however, illustrates yet another possible mechanism, for it has been shown that every second auricular beat (with occasional exceptions) occurred before the termination of the preceding ventricular systole; on these occasions the auricles must fail to empty their contained blood into the ventricles, and they are consequently full of blood at the commencement of the succeeding diastole; during this diastole they must become overfilled—particularly in the case of the left auricle if the output of the right ventricle remains effective. In due course, if the condition continues, auricular hypertrophy is likely to follow, and once this has occurred the diastolic overfilling will be lessened. Thus the accentuated pulmonic second sound, the broad notched P of the electrocardiogram suggestive of auricular hypertrophy, the occurrence of pressure symptoms, and their ultimate disappearance can all be explained as the result of the heart-block; the latter in this case can only be ascribed to myocardial degenerative changes resulting from disease of the coronary arteries.

It must be pointed out that in order to explain the facts as above the essential feature is, not the presence of heart-block, but the occurrence of a relatively large proportion of the auricular beats at a time when the ventricle is actually contracting. There are other disorders of cardiac rhythm in which this condition may be fulfilled—e.g., certain cases of parasystole—and on the other hand, by no means all cases of heart-block—or even of 2–1 block fulfill the requisite conditions. In an ordinary case of 2–1 block, where the ventricular systole is not unduly prolonged and where the P–R interval of the effective auricular beats is not greater than 0·2 sec., the total duration of a cardiac cycle will not exceed 0·52 to 0·6 sec.; unless the auricular beats follow one another at intervals of less than 0·6 sec., therefore, the alternate beats will not occur before the termination of the preceding ventricular systole; that is to say, unless the auricular rate exceeds 100 per minute the conditions will not be fulfilled. To enable the conditions to be fulfilled with a lower auricular rate, there must be, in addition to the 2–1 block, either a prolongation of the P–R interval of the effective beats, or a prolongation of the duration of ventricular systole (RST period). Similar considerations may be applied to other grades of block and to other disorders of rhythm.

I am indebted to Dr. Ivy McKenzie for permission to publish the case, and to the superintendent of the Victoria Infirmary for permission to reproduce the radiogram.

A NOTE ON THE TREATMENT OF NEURASTHENIA.*

BY A. W. HENDRY, M.D., M.R.C.P. LOND.,
ASSISTANT PHYSICIAN, ABERDEEN ROYAL INFIRMARY.

THE purpose of this paper is to suggest a simple provisional plan for dealing with neurasthenic states. Life, it has been said, is the continuous adjustment of internal relations to external relations. In the mental sphere suitable adjustments depend on adaptability, and if adaptability be deficient or defective appropriate adjustments cannot occur, hence conflict and mental disharmony. Adaptability is largely a constitutional characteristic depending on the predetermined disposition of the brain. Where the predominating feature of a mentality is affective tone, there must follow a tendency to emotional states without which the neuroses could not occur. This tendency may occur in a mind otherwise normal;

* Based on a lecture delivered to the Aberdeen University Post-Graduate Society.

it results simply from a high degree of the affective component. It may also occur in a mind below normal. Neurasthenia is as common in persons highly endowed as in persons below normal. Wherever the feelings get the better of the critical powers, wherever adaptability is deficient or defective, there must result a soil suitable for the growth of functional nervous diseases. Although it is generally accepted that a neuropathic tendency is constitutional, we should remember that, just as good soil becomes poisoned or tired, so the normal constitution under toxic conditions or fatigue may become deteriorated and susceptible to neurotic ailments. We can imagine circumstances which would render neurotic the strongest, the most stable mind. Neurasthenia, then, is a condition depending on a predominating emotionalism, a susceptibility which may be congenital or acquired.

How the Neurasthenic State is Induced.

The determining cause is any circumstance, real or imaginary, which conditions an unpleasant and unacceptable emotion. The adequate stimulus varies with the susceptibility to neurasthenic states. If the susceptibility be slight, the adequate stimulus must be considerable; if the susceptibility be great, the adequate stimulus need be but slight. Neurasthenic susceptibilities are like explosives; it takes a flame to explode one, a spark may explode another, while some explode spontaneously. Pleasant emotions are always acceptable; they cannot determine neurasthenic states. There always exists in neurasthenia some unpleasant and unacceptable emotion. One man hears of his financial ruin. He accepts, perhaps with sighs, his return to poverty and hard gruelling work; he sells his house and his cars, and discharges his servants. He says to himself, "Hard luck!" and as he clenches his hands and sets his jaw, he continues "Ah, well, its no good crying. I'll just have to make the best of things. I'll start again. I'll make good again." This man is no neurasthenic, he has accepted the misfortune and adapted himself to his altered circumstances. His mental digestion is equal to the unpalatable task. Another man hearing of his financial ruin is stunned and drops into a chair. Holding his head in his hands he rolls about and moans and groans. Sleep has deserted him; appetite is gone; his friends have forsaken him; the world has crushed him; he is misery personified. In despair he turns to his doctor, who may prescribe a stomachic and tell him that his stomach is out of order. He miserably carries on and his stomach does not improve; he begins to dread cancer, gets X rayed, has a fractional test-meal, has his stool examined, and generally ends in a worse state than ever. This man has not adapted himself to his environment; he has not accepted the unpleasant fact. This creates a mental state outside his mental entity. There is a foreign body in his mind. The uninvited, unpleasant, and persistent guest is kept at the door, where he creats a disturbance and corrupts all other visitors and thus multiplies the discomfort. The unpalatable body should have been swallowed and digested. The uninvited guest should have been asked in, and the differences settled.

The first step in a neurasthenic state is emotionalism. The unpleasant state cannot be entertained yet cannot be forgotten. The mind becomes preoccupied. This preoccupation has two results: (1) All stimuli are tainted according to the preoccupation; hence dyspepsia becomes cancer, palpitation becomes heart disease—i.e., emotional infectivity. (2) The preoccupation means the inhibition of critical faculties, hence the tendency to accept any statement without criticism; this is increased suggestibility. The sequence, therefore, is emotionalism, preoccupation, emotional infectivity, and increased suggestibility.

The Three Steps in Treatment.

The first point which I stress is, that very careful and sympathetic note should be taken of the numerous complaints. Sympathy and patience will be required, for the patient frequently goes on speaking about his symptoms for an hour or more, and it is the greatest mistake to cut him short. It is of the utmost importance also that notes be taken. There are many medical men who consider this a waste of time and cut the symptom-telling short. These men can never treat neurasthenics with any hope of success. They cannot spare an hour to carry out this absolutely necessary part of the work, but they will waste months in vaguely attempting to do the impossible. The patient should be encouraged to dilate on his troubles, for sometimes the neurasthenic is reticent, and unless you get to know your patient thoroughly—to know his fears, his pleasures, his ambitions, his home life, his habits, and his circumstances you may miss an all-important clue. It is not usually difficult to get him to unburden himself if he has confidence, and I feel very strongly that confidence can be engendered by sympathy, tact, understanding, and a genuine desire to help these patients to recovery. After you have heard his story, repeat it to him; this will keep you right and will also help the patient to appreciate the real interest you have taken in his case. All you have done in this hour is to listen to his story; in reality you have entered into his life, you have got to know him, and he has placed his confidence in you. As a matter of experience I should say you have won half the battle.

At the next meeting, probably a few days later, it is best to subject him to a complete physical examination, an examination which must be thorough and painstaking, each system being taken in turn. You then know his physical state and you increase his confidence in you, but I think it important that on both these occasions you should give nothing away. Assure him that physical examination is a routine affair, and do not attempt to give any interpretation of his symptoms. Your interpretations at this time would probably be wrong and would have to be retracted later; this rather tends to shake confidence.

Your duty is now to associate symptoms and signs; if there be no physical disease then you must analyse his symptoms. Go through them again and you will almost invariably find a common denominator, some unacceptable emotion from which all others are derived. This is usually where experience and knowledge of human nature tells, but it is not a bad rule to be guided by the earliest symptoms. In the case we have mentioned the patient may be seen years after the financial loss; his symptoms might easily be gastric or the wasting might invite thoughts of malignant disease, but the chronological order of symptoms would or should suggest the beginning of his illness. The anorexia would date from that time. The absence of physical signs of organic disease would also indicate a psychopathic disease. Put yourself in the patient's position, assume for a period his mentality and imagine the effect. In fact, I find the easiest way to understand a patient is to imagine I am the patient; it is then usually possible to interpret the symptoms. Distress inhibits appetite; sleep does not come to one who carries a constant mental agony.

The third time the patient is seen I usually find it necessary to ascertain a few matters connected with his symptoms, and by asking a few questions find out whether the general plan of my interpretation is correct. If this be so, then I proceed to unfold the story so that he himself can follow. I take him back to the initial emotional state, indicating how the symptoms occurred and how the others followed, explaining the mechanism as I go along. This does not take very long, usually about half an hour. It is then time to return to the cause under conviction, the original fault, and it will frequently be found that a different presentation of the matter results in its acceptance. Sometimes it is necessary to "predigest" the problem for him. He will then see that he should have acted differently, and nearly always says so. The case is three parts cured, but the morale remains to be improved by encouragement and persuasion: this is where sympathy and his confidence count for a great deal, for without these he will not respond. With them his morale is enhanced, he will accept unpleasant

facts, he will adapt himself thereto. The ruined man resumes means to mend his broken fortunes.

The Time Element.

The treatment takes time; it cannot be done in a day. It may be wise to isolate the patient for a time. Physical therapy is of value as means to an end, and any physical disorder should most certainly receive its proper treatment. In the main, however, the treatment is psychotherapy, a method at present rather in disgrace. Just as the healing knife of the surgeon is a murderous weapon in a villain's hand, so is psychotherapy in the hands of ignorant and unscrupulous persons. In the hands of the physician the methods I suggest can bring nothing but peace and happiness to his patients and satisfaction to himself. It is not suggested that this treatment will cure the predisposition to neurasthenic conditions, but that it will, so to speak, help the patient over a fence in the rough road of life. Curative treatment depends chiefly on prophylaxis. If we could get the child's mind in the plastic stage before predispositions were fixed, then it might be possible so to lessen the tendency to emotionalism that neuroses would not occur.

A SIMPLE METHOD OF TREATING CAVERNOUS NÆVI.

By G. B. Dowling, M.D., M.R.C.P. Lond.,

DERMATOLOGIST TO THE WEST LONDON HOSPITAL; ASSISTANT PHYSICIAN IN THE SKIN DEPARTMENT, GUY'S HOSPITAL.

THE treatment of cavernous angioma has always been a rather difficult problem. While the probable spontaneous disappearance of these tumours may be prophesied, for the patients are almost always infants or young children, the majority of parents prefer to have them removed as early as possible.

Application of carbon dioxide snow is ineffective though it will destroy the strawberry mark which often overlies the subcutaneous angioma, and it may even efface an overlying port wine stain. Apart from surgical excision, which is undesirable in an infant, and in some situations impossible, the methods commonly used are:—

1. Application of radium; a reliable method in the earliest cases, but likely to leave a radium scar.
2. Electrolysis with single or multiple platinum points; a painful method necessitating an anæsthetic.
3. Electro-coagulation with a needle electrode; also a painful method, and certain to damage the skin around the parts through which the needle is passed.

It occurred to me, as it has probably occurred to others, that it might be possible to destroy these lesions by thrombosing their contents by means of one of the coagulants used in the treatment of varicose veins. I have treated five cases at the West London Hospital during the past year by injecting the commonly used solution of quinine bihydrochloride and urethane; the result has been very satisfactory.

In the first case, an infant of six months, had two injections at intervals of a week into a small cavernous nævus situated on the back. The child was not brought up to see me for three months, so I was unable to observe its progress, but the eventual result was a complete flattening of the lesion, leaving a small disc of replacement fibrosis in the skin. The next two cases were treated concurrently. In one there was a cavernous nævus situated in the right labium majus; it received three treatments, carried out at intervals of a fortnight, 4 mm. of the solution being injected at a time. This nævus was somewhat shallow, and sloughing at one or two points took place; this, however, gave rise to very little trouble and the result was excellent, all that now remains being flaccidity of the skin over the part in which the nævus was situated. The other case, a cavernous nævus of 1½ inches diameter on the back, had three treatments; it also disappeared, leaving again a flaccid overlying skin. Finally, two cases of cavernous nævus of the scalp have been treated. These required three treatments each, with the same results as in the former cases—that is, gradual disappearance of the nævus, leaving an overlying, somewhat baggy skin.

About 4–5 minims of the solution of quinine is injected at a time. The needle is passed in near the base of the nævus and about a minim is injected in three or four places. It is probable that many of the lacunar spaces are not reached by the initial treatment, but the immediate effect is an apparent solidifying of the whole nævus. In a fortnight the lesion flattens down somewhat, and the skin over it becomes slightly flaccid. It is then treated in the same way again, selecting parts which appear to have been unaffected by the first treatment. In a fortnight a further degree of shrinking of the nævus is observed, and a third treatment may then be given or it may be left for a few months, and further treatments given if necessary.

I have not treated a cavernous nævus on the lateral aspect of the nose, a common and unfortunate position, because of the possibility of extension of the thrombosis to the cavernous sinus. Although the number of cases that I have so far treated is small, I believe that thrombosis by injection may prove to be the future method of choice.

Reports and Analytical Records.

VINO SAN RAFAEL.

ESPECIALIDAD DE LA SOCIEDAD VINICOLA TARRAGONA. (SPANISH PRODUCE, BOTTLED IN GERMANY.)

THIS rich, red, fruity wine when analysed gave the following results:—

Alcohol by volume	18·24	per cent.
Equivalent to proof spirit	32·0	,,
Total acidity as tartaric acid	0·20	,,
Volatile acidity as acetic acid	0·03	,,
Total extract	23·0	,,
Consisting of—		
Sugar	22·18	,,
Mineral matter, protein, &c.	0·82	,,

The preservatives salicylic, benzoic, and sulphurous acids were tested for with negative results.

The wine, although it has the normal alcoholic content of a port, contains almost three times the amount of extractives. The acidity is low and the wine, whilst possessing a slightly astringent flavour, may be regarded as a pure product, and of value as a tonic.

CANNED FISH.

(1) PONY SMOKED HERRINGS IN TOMATO SAUCE; (2) IVANHOE BRAND SELECTED NORWEGIAN BRISLING; (3) IVANHOE BRAND BONELESS KIPPER SNACKS; (4) FINEST NORWEGIAN SILD.

(THE QUALITY CANNING CO., STAVANGER AND LONDON.)

The following four different kinds of fish were examined—viz., Pony Smoked Herrings in Tomato Sauce, Ivanhoe Brand Selected Norwegian Brisling in pure olive oil, Ivanhoe Brand Boneless Kipper Snacks, and Finest Norwegian Sild in pure olive oil.

	Pony smoked herrings with tomato.	Brisling in olive oil.	Kipper.	Sild in olive oil.
Total weight of contents of tin	280 g.	111 g.	89·5 g.	114 g.
Weight of fish	260 g.	92 g.	89 g.	98 g.
Percentage of fish in total contents	95	82·9	100	86
Moisture (per cent.)	65·2	59·5	66·8	65·6
Proteins (per cent.) on drained fish	19·2	19·5	21·6	20·6
Ash (per cent.) on drained fish	4·0	5·3	4·46	4·7
Fat (per cent.) on drained fish	11·6	15·7	7·11	9·1
Calorie value per lb. of drained fish	846·6	1025·2	703	767

The different fish were obviously well selected and of good quality. They were clean, palatable, and efficiently sterilised in the packing process. The calorie figures indicate the relative value of these fish as food materials.

GENERAL MEDICAL COUNCIL.

PENAL CASES.

(*Continued from p. 1197.*)

Alleged Adultery with a Patient.

The Case of Frederick Howard Pratt, registered as of 331, Brownhill-road, London, S.E. 6, M.R.C.S. Eng., 1925, L.R.C.P. Lond., 1925, who had been summoned to appear before the Council on the following charge:—

"That you abused your position as a medical man by having intimate relations, at your surgery at 89, Stondon-park, Lewisham, London, S.E.23, and elsewhere, between May and November, 1928, with a married woman with whom you stood in professional relationship; and that in relation to the facts so alleged you have been guilty of infamous conduct in a professional respect."

The complainant was the husband, who was represented by Mr. J. A. T. Good, of Good and Co., solicitors. Dr. Pratt appeared and was accompanied by Mr. Laurence Vine, instructed by Mr. Denton Rowe, solicitor.

Mr. Good stated that complainant had visited Dr. Pratt for ophthalmic treatment in 1927, and his wife had consulted the doctor a few days later. Violet-ray treatment had been ordered and had been administered, on some occasions by Dr. Pratt's wife. In January, 1928, complainant's wife had consulted the doctor about dyspareunia, and had been given treatment. In March Dr. Pratt had advised consultation and, as he had handed the written address of the specialist to complainant's wife, he had put his arm around her and kissed her. She had not told her husband. On the next day the doctor had again kissed her, and said he had "never felt like that before." On Oct. 14th she had had an operation at St. John's Hospital, and had then been found to be pregnant. It was not suggested that the child was not her husband's. Dr. Pratt had made advances to her on a number of occasions, but had been repelled. The first intimacy had taken place at the surgery in May, and during the doctor's holiday in July she had written to him affectionately. In September Mrs. Pratt had been away and the doctor had invited complainant's wife to his house, where intimacy had again taken place on a couch in the consulting-room. There was no doubt that she had been absolutely infatuated and had pursued the doctor, strongly resenting his attempts to withdraw from the relationship. Intimacy had continued up to three weeks before her confinement. While in the nursing home she had told the doctor that he was not treating her properly, as he was taking up with a nurse. On the last day of 1928, in a local restaurant, she had informed her husband of what had happened. In the evening the complainant and his wife had met the doctor, who had said intercourse had only happened five times, and that all had been over four months before. There had been a scene. The complainant, considering his young baby, had taken the line that the doctor must leave the neighbourhood in a month. Later he had seen the doctor at his surgery, and had left a note saying he would complain to the General Medical Council.

Complainant's wife testified that she had first seen Dr. Pratt in October, 1927, when she had accompanied her husband to the surgery, and later had seen him professionally by herself. She confirmed the account given by complainant's solicitor of subsequent events, and gave details of Dr. Pratt's advances to her. Misconduct had first taken place in the surgery in May, 1928, and had been repeated two or three times a week thereafter. She had written to the doctor at Rotterdam and Antwerp when he was on his holiday, but had never had an answer. He had never suggested discontinuance. She described the visit to the house, a visit to the bedroom, and intimacy in the consulting-room. The last intimacy had been on Nov. 2nd, and the baby had been born on Nov. 23rd. In the nursing home she had told the doctor that she had been informed that the doctor was "hot stuff" and could "not leave women alone, married or single," and that he had taken out a sister at the home. At the interview between the three parties Dr. Pratt had said his wife would probably divorce him, and that he had never cared for witness. He had, in fact, given up his surgery. Witness had seen Dr. Pratt and his wife subsequently. Before making her declaration she had telephoned Dr. Pratt and had gone to see him and talked it over. She had said she would not make the declaration if she could believe that he had ever meant anything he had said. She had suggested that he should undertake the education of the baby, and the doctor had agreed on condition that her husband withdrew the complaint. He had, however, never sent the promise in writing.

Cross-examined, she said she had married in 1926. She had not complained when Dr. Pratt had first kissed her because long before that he had won her sympathy. She denied that she had pursued and waylaid the doctor, writing and telephoning almost daily, or that she made the complaint in a spirit of vindictiveness. She had not behaved like a person deranged after her operation. Every time she had visited the doctor he had asked her to come again. She did not agree that she had been infatuated; she had been in love with the doctor. Dr. Pratt had not remonstrated with her for writing or pestering. She had told him towards the end that she felt he was getting tired and he had only to say so frankly and she would back out. She had not behaved like a distracted woman in the waiting-room. She had never been removed by the police. On one occasion in January she had waylaid Dr. Pratt after a quarrel with her husband; this was the only episode of the kind. She had not gone round to extract money for the education of the child; she had gone to see if he had ever cared at all. Her husband had known nothing about the visit. The support of the child had been the doctor's suggestion in the first place. She had not concocted the story of intimacy because she was jealous and because he would not educate her child.

Re-examined: Up to the time of the present inquiry Dr. Pratt had never denied intimacy. She had never either wanted or received money from Dr. Pratt.

By the Legal Assessor: Intimacy had usually taken place between 9 and 10 in the morning at the surgery, at first always as a result of a message from the doctor fetching her over. The surgery was at the back of the house. They had had an arrangement whereby she rang three times and the doctor opened the door to her. On some occasions the landlady had opened the door. Usually witness had gone straight into the surgery, but on the rare occasions when other patients had been waiting she had gone into the waiting-room. Intimacy had taken place in her house at various times of day in various rooms when she was alone in the house. Her husband had his own business as an iron founder and should be able to afford to educate his child by the time it grew up.

By the President: She had never expected replies to her letters. She had been rather annoyed at the doctor's refusal to take her out in his car.

The complainant identified professional receipts from Dr. Pratt dated October, 1927, April, 1928, and an unpaid account October–December, 1928, including confinement, and related other accounts which he had paid. His wife's mind had been perfectly normal after the operation and always. He described the interview on Jan. 1st, confirming Mr. Good's account of it. Dr. Pratt had said it had not been a question of love but of pure physical attraction. At his private interview with Dr. Pratt, the doctor had remarked that medical students were warned against a certain type of woman. There had been no denial of the intimacy. Subsequently witness had consulted solicitors, had threatened proceedings before the General Medical Council, and had withdrawn this threat at the request of his wife. On April 9th he had written again saying that he proposed to proceed

with the complaint, as the doctor had not kept the spirit of their agreement and had been seen about the neighbourhood.

Cross-examined, he admitted that the doctor had told him when he threatened to report him to "get on with it," but did not agree that he had treated both complainant and his wife with contempt. He had never said he was satisfied with Dr. Pratt's explanation. He had noticed that his wife was very unhappy and highly strung after the operation. The doctor had said "as far as clearing out of the neighbourhood is concerned, the surgery does not pay and I have been meaning for some time to give it up." Witness knew nothing of and would not have approved of the suggestion to educate his child. His wife had never suggested withdrawal of the complaint on any such condition. He had not realised how infatuated his wife had been with Dr. Pratt.

By the President: He had heard of the General Medical Council from his cousin, a doctor. He had consulted the solicitor about divorce.

By the Legal Assessor: The doctor's words had been that "it had only occurred five times"; he had not charged the doctor with intimacy, as it had been taken for granted. As the doctor had come in he had said "I understand your wife has told you all about it." The term "intimacy" had never been used.

Mrs. Cokayne testified that she had worked in the house of complainant and had heard the quarrel on Jan. 1st, and had identified the words "Won't you kiss me good-bye?" said by Dr. Pratt.

Cross-examined, she said she had heard voices for more than half an hour but had only heard this one sentence. She was certain these words had been said by Dr. Pratt.

By the President: She supposed the parties had come out into the hall when she had heard this expression.

The Defence.

Dr. Pratt, examined by his counsel, said that he had started practice at the surgery in November, 1925, and was still carrying on practice in the neighbourhood, but had given up the surgery. Complainant's wife had consulted him for pruritus vulvæ, and as this had not responded to Lassar's paste she had been put on sunlight treatment. He described in detail the geography of the surgery to illustrate how little privacy there was there. He agreed that he had usually seen complainant's wife between 9 and 10 A.M., but she had been received absolutely as any other patient and there had been no arrangement of ringing three times. He had never kissed her at any time. During her pregnancy she had visited the surgery about once a fortnight. She had begun to get anxious about her confinement, but he had not noticed anything abnormal towards himself until September. There was no truth at all in her allegation that intimacy had taken place between May and September. The right ovary had been removed and this, together with her pregnancy, had seemed to him to account for her frequent visits and anxiety. Between September and November she had been perpetually at the surgery; it was absolutely untrue to say she had only come at his request. She had started writing letters just before his holiday in July and had written two while he was away. He had been very surprised to see them and had torn them up. He had noticed no abnormal affection for himself. She had accosted him on Christmas Eve as he left his surgery, thanking him for looking after her so well and proffering a petrol lighter as a gift. He had taken this home and shown it to his wife. On the last Sunday in the year the husband had rung him up saying she was in a terrible state of nerves. He had gone round and found her absolutely incoherent and hysterical. He had never seen her like that before and had prescribed valerian bromide. He had been in bed with influenza on Jan. 1st when she had rung up; he had refused to go, but later a new patient had rung up. He had agreed to get up to see the other patient and so had acceded to her second request for a visit. Mrs. Pratt had driven him to the house. He had found complainant's wife in the same excited state. She had said "I've told my husband everything" and that this had included intimate relations with him. He had said "you know that is absolutely untrue." She had wept and he had left. In consequence of a conversation with his wife he had telephoned complainant that evening and had visited him to explain the patient's state and deny the allegations. He had said to complainant "You know that the whole thing is absolutely untrue," and had repeated this to complainant alone. He had never said "it only occurred on five occasions." Complainant had said, "Oh, I could get you turned off the Register. I have a cousin high up in the profession who has influence and who could get you knocked off." Witness had replied "Get on with it then," and had walked out. That evening complainant had rung up to say he was not doing any more and witness had simply put the receiver down. A few days later he had found a note saying complainant was going to report the whole matter to the General Medical Council. About a month later he had met complainant's wife, who had refused to leave him. He had taken refuge in the house of some friends, but she had waited for him and tried to follow him on to a bus and a tram, and he had asked two police-sergeants to see her home. About May she had appeared in the waiting-room; he had asked two other patients to remain outside in the passage and listen to the conversation with complainant's wife. She had proposed that if he would bring up her child as he would one of his own she would withdraw the complaint. He had absolutely repudiated the suggestion and she had become hysterical. Her account of this interview was absolutely untrue. He had never carried on with nurses, nor had complainant's wife ever spoken of it to him. He had not said "Kiss me good-bye," but had probably said "Good-bye." He had never on any occasion had sexual connexion with complainant's wife and had always denied the allegation.

Cross-examined, he said he had torn up all her letters, many of them unread. They had not been professional letters but they had not been love-letters. He had not told the husband because he had put them down to her mental state and had ignored them.

By the Legal Assessor: He had told complainant's wife where he was going on holiday but not when he would be at certain places. She had known how to follow the movements of the ship he was on; it was a definite routine cruise. His surgery was overlooked by several houses; when consulting he had had the curtain drawn.

By the President: He had not asked her to write to him nor had she asked if she might write. She had just said she could find out the movements of the ship. There had been nothing in these letters or in her behaviour to arouse his suspicions of the state of her affections until towards the end of the eighth month of her pregnancy. No reference had ever been made in interviews to the letters. Complainant had not given him a month to clear out; he himself had brought the subject up, saying it was curious that he had arranged to close the surgery.

Mrs. Pratt confirmed the material facts as related by her husband. She had noticed a great alteration in complainant's wife after the birth of the child and had regarded her as deranged. Witness had had experience as a nurse.

Mrs. Hooper testified that she had assisted in the housework at Dr. Pratt's house and had seen complainant's wife there on May 21st. A patient, Mrs. Smith, had been present at that time and they had both been asked by Dr. Pratt to listen to the conversation. She related the conversation, confirming Dr. Pratt's account of it. Complainant's wife had first mentioned the education of the child and the doctor had said "Certainly not." When she came in and when she went out she had been very agitated, and she had been waiting outside in the road half an hour later.

Cross-examined, she said complainant's wife had appeared to be demented. Witness had not known

why the doctor had asked her to listen or why he had said complainant's wife was a dangerous woman.

Mrs. M. T. Smith confirmed this account of the interview in all particulars.

Mr. Vine addressed the Council, sketching the case as an example of the lengths to which a neurotic woman would go and pointing out the absence of any corroboration of her story.

Mr. Good argued that a professional man receiving affectionate letters from a woman patient and destroying them was acting suspiciously.

After deliberation in camera, The President announced the decision of the Council as follows :—

"Mr. Pratt: I have to announce that facts alleged against you in the Notice of Inquiry have not been proved to the satisfaction of the Council. The case is, therefore, dismissed."

The Case of Donald McGregor Stewart, registered as of 5, Waunwen, Nantymoel, Glam.; L.R.C.P. and S. Edin., 1917, L.R.F.P.S. Glasg., 1917, who had been summoned to appear before the Council on the following charge :—

"That you were convicted of the following misdemeanours —viz., (*a*) At the Bridgend Petty Sessions: (1) On Oct. 16th, 1926, of being drunk whilst in charge of a motor-car, and were fined £3 and your driving licence suspended for 12 months; also of driving a motor-car to the danger of the public, and were fined £1; (2) on Oct. 8th, 1927, of being drunk, and were fined 10*s.*; also of using indecent language, and were fined 30*s.*; (3) on Nov. 26th, 1927, of using indecent language, and were fined £3 or 14 days; (4) on June 16th, 1928, of using indecent language, and were fined £2 or 14 days' hard labour; (5) on August 18th, 1928, of being drunk and disorderly, and were fined £1; (6) on May 11th, 1929, of using indecent language, and were fined £3 or 14 days' hard labour; and (*b*) At the Ystrad Police court: (7) on June 25th, 1928, of using indecent language, and were fined £3."

Mr. Stewart appeared in answer to his notice.

Mr. Harper presented certified copies of the convictions and explained that Mr. Stewart had not appeared earlier in respect of the convictions in 1926 and 1927 because the first four had all been reported together to the Registrar, who had written in October, 1928, warning Mr. Stewart that any further conviction would cause him to be summoned before the Council. The actual language used by Mr. Stewart had been circulated to the members, and in the whole course of his experience Mr. Harper had never known such language used by a medical man.

Mr. Stewart addressed the Council on his own behalf, pleading as extenuating circumstances his war service, testimonials to his work and character, an organised movement to prevent him from practising in the valley, and a severe motor accident involving a compound fracture of the skull in 1926. He still suffered from extreme irritability and scotoma as a result of this injury. He related the events leading to the various fines, claiming that he had been wrongly convicted, largely owing to the animus of a certain constable. He did not think he could possibly have used that language. He expressed his great regret, promised that the offence should never be repeated, and said that he had become a total abstainer.

Mr. H. E. Lewis, clerk to the insurance committee for the County of Glamorgan, testified that Mr. Stewart had increased his panel list every year since he had started. He had appeared several times before the Medical Insurance Subcommittee on the question of these convictions. The subcommittee had talked very seriously to him but did not feel justified in suggesting removal of his name from the list. The subcommittee would be very much surprised if the Council took extreme measures with Mr. Stewart.

The President pointed out that some of the convictions antedated the accident.

In answer to questions by the President, Mr. Stewart said that he had only defended one case; the bench of magistrates had been the same on each occasion. He read a testimonial from a professional colleague.

The President announced that judgment would be postponed until the November session, 1930. Before that date Mr. Stewart should furnish the Registrar with the names and addresses of professional colleagues willing to testify to his good conduct in the interval, and he must clearly understand that in the event of any further conviction of a like nature in the meantime the Council might direct the Registrar forthwith to remove his name from the Register.

The Case of John Caldwell Fergusson, registered as of 10, Upper Northgate-street, Chester; M.B.E., M.C., L., L.M., 1915, R.C.P. & S. Irel., who had been summoned to appear before the Council on the following charge :—

"That you were on August 6th, 1929, convicted at the City of Hull Police-court of the following misdemeanours—namely, (1) that you on April 29th, 1929, being a person authorised to supply preparations, unlawfully did not keep in accordance with the provisions of Regulation 11 of the Dangerous Drugs (Consolidation) Regulations, 1928, a registe and enter therein true particulars with respect to every quantity of a certain preparation, to wit, one pound of tincture of opium obtained by you, contrary to the before-mentioned Regulations made under Section 7 of the Dangerous Drugs Act, 1920, and were fined £2 2*s.* or 29 days' imprisonment and £3 3*s.* costs; and (2) that you on May 7th, 1929, being a person authorised to supply preparations, unlawfully did not keep, in accordance with the provisions of Regulation 11 of the Dangerous Drugs (Consolidation) Regulations, 1928, a register and enter therein true particulars with respect to every quantity of a certain preparation, to wit six ounces of liq. morphinæ hyd., obtained by you, contrary to the before-mentioned Regulations made under Section 7 of the Dangerous Drugs Act, 1920, and were fined £2 2*s.* or 29 days' imprisonment and £3 3*s.* costs."

Mr. Fergusson sent a medical certificate stating that he was suffering from paresis of the left side and tuberculosis of the right lung, and was unable to attend.

Mr. Harper read a long letter he had received from Mr. Fergusson. His poor health and lack of money had prevented him from making a good defence, and he had wrongly supposed that the onus of proof was on the prosecution. His functional disability dated from the time when he had been blown up in Flanders and he had had frequent attacks ever since, involving constant periods of rest alternating with light work. He had had an attack on the morning of the case in court, and his solicitor had not known the Act. The conviction had arisen from the failure of the doctor whose practice he was taking to hand over the poisons register. Mr. Harper read a letter from the chief constable of Northallerton, stating that a local doctor had asserted that Dr. Fergusson was a drug-taker and unfit to practise, and relating several incidents in which Dr. Fergusson had been involved. After deliberation in camera the President announced that the Council had not seen fit to erase Dr. Fergusson's name from the Register.

An Erasure for Drunkenness.

The Case of John Joseph Macabe, registered as of 58, Brunswick-street, Chorlton-on-Medlock, Manchester, M.B., B.Ch. 1918, N.U.Irel., who had been summoned to appear before the Council on the following charge :—

"That you were on April 3rd, 1929, convicted at the Manchester City Police-court of the following misdemeanour —viz., of being drunk and incapable, and were fined 10*s.* or 7 days' imprisonment and your bail of 20*s.* forfeited."

Dr. Macabe had twice before appeared on similar charges. He did not attend and was not represented. The Council directed the Registrar to erase his name from the Register.

COMMITTEE BUSINESS.

EXECUTIVE COMMITTEE, NOV. 25TH.

Official notification was read of the reappointment as members of the Council of Sir George Newman (Crown nominee) for five years from Oct. 9th, 1929, Prof. John Beresford Leathes (representative of the University of Sheffield) for three years from Oct. 27th, and Sir John Moore (representative of the Royal College of Physicians of Ireland) for one year from Oct. 18th.

Restorations to the Register under Section 14.—The prescribed conditions having been fulfilled, the

following names, removed through the omission to keep the Registrar informed of change of address, were restored to the Medical Register :—

Mrs. Gertrude E. Bartlett, Thomas L. Bonar, Neville E. Challenger, Thos. H. R. Davies, Mrs. Rose C. D'Monte, George G. Dooley, Bernard C. Ewens, Leonard M. Gabriel, William E. Giblin, John F. Haynes, Sidney Hughes, George C. Jeaffreson, Mrs. May E. Law, Vinayak L. Manker, Charles E. H. Paley, John F. Woodyatt.

Curriculum of the Welsh National School of Medicine. Approval was given to the grant of a Charter of Incorporation with the proviso—

That the curriculum should be so framed as to afford sufficient opportunities for the study, during the last three years of the course, of physics, chemistry, biology, anatomy, and physiology, in their practical applications to medicine, surgery, and midwifery, and that the student's knowledge of these applications should be subject to test in the final examination,

a recommendation to which the Council attach great importance.

Reciprocity.—The Royal College of Surgeons of England called the attention of the General Medical Council to the difficulties in matters relating to reciprocity of medical registration between this country and British Dominions, particularly as affecting medical graduates in certain British Dominions desirous of obtaining the F.R.C.S.

The Italian Ambassador having inquired whether under the Anglo-Italian agreement of 1925 persons possessing Italian qualifications were entitled to practise in the Union of South Africa, and having asked for a complete list of territories between which and Great Britain reciprocity existed, was informed that the only parts of the Dominions with which reciprocity did not exist were the following Provinces of Canada: British Columbia, New Brunswick, Ontario, Quebec, and Saskatchewan—and that at the present time there was limited reciprocity with New Zealand.

"Army Medical Service" as an Address in the Register.—In consequence of the exception taken by a practitioner to the address "Army Medical Service," the Army Medical Department of the War Office were asked if, in their opinion, the time had come when a change should be made in the title, which had been in use for something like 30 years. They replied giving as the correct description different designations for the various ranks, and it was suggested to them that a generic title which would cover all officers in the Service regardless of rank, and preferably regardless of whether they were still serving or not, was highly desirable for the reasons that army rank was not given in the Register, and that it would be difficult for the Council to ascertain with accuracy whether or not officers were still serving. It was suggested that if it was thought desirable "Royal Army Medical Corps" might be substituted for "Army Medical Service," and the department replied that the case might be met by the substitution of the word "Army" for the present term. It was finally decided to retain the present designation as no real case seemed to have been made out for a change, and it was gathered that there was no strong desire on the part of the department that any change should be made.

Home Office Authorisation.—The Home Office had notified the Council on Oct. 14th that authorisation under the Dangerous Drugs Act, 1920, had been withdrawn from John Caldwell Fergusson, Reginald George Karn, and Frederick Stuart. The cases of Frederick George Lewtas, John Symington Stewart, and Sydney Robert Walker had been previously notified.

Other Committees.

Study of Biophysics and Biochemistry.—Sir Humphry Rolleston, chairman of the Education Committee, presented a report on professional instruction in physics and chemistry in their relation to medicine, particularly during the clinical years. In a special report the committee publish the replies received from the various educational authorities which show that the pre-clinical instruction given in biology, chemistry, and physiology appear satisfactory, but many of the bodies have not provided any information about the continuation of teaching in these subjects during the clinical years, while others remark that the amount of instruction incidentally given during the courses in pathology, pharmacology, and clinical medicine must obviously be determined by the demands of the subject and the personal leanings of the teacher. Sir Humphry moved that the report be referred back until all the teaching bodies had supplied adequate answers on this point. The committee recognise the force of the argument that the pre-clinical subjects should be taught by the clinical teachers in application to the clinical subjects, but it is also aware that all clinicians cannot be presumed to be sufficiently au fait with the progress of biochemistry, physiology and chemistry to foresee the application of their most recent advances to medicine. Applied anatomy is the pre-clinical subject most often taught in a special course during the clinical years, but the clinical pathology course covers a good deal of the ground that might be dealt with in a special course of applied physiology or biochemistry.

The *Examination Committee* has been paying attention to the subjects of medical jurisprudence and public health, and Sir Norman Walker, the chairman, presented an interim report on this subject. In most medical schools courses of instruction are given on each of these two branches, and very often a medical officer of health is the professor of public health or there is a link between the professor and the local health department. Generally speaking, the course of instruction in each subject lasts one term, and students are examined in their final examination, or occasionally at the end of the fourth year of study.

The *Pharmacopœia Committee* reported that 2360 copies of the British Pharmacopœia, 1914, were sold in the year ending Nov. 23rd, 1929, bringing the total to 58,183 copies. Subcommittees on pharmacy, pharmacognosy, and pharmaceutical chemistry have been formed and are preparing monographs, 93 of which have already been circulated. Other subcommittees have been formed to deal with the special subjects of ergot and its preparations; drugs of the arseno-benzine group, standards for ampoule glass, and the preparation of sterile solutions. The commission have inquired into several substances which it is proposed to include in the Pharmacopœia, such as tetra-iodophenolphthalein sodium, thyroid gland, and tinctures of strophanthus and squill. The commission hope to establish close coöperation with the United States Pharmacopœia Committee so that the two Pharmacopœias may be unified as far as possible. The report includes a copy of correspondence referring to the proposed international agreement on potent drugs.

The *Public Health Committee* has been visiting examinations for the diploma of public health, and has found that, on the whole, the implications of the Council's regulations have been satisfactorily carried out. Those regulations made such a change in the requirements for the diploma work that difficulties and objections might well have been expected but they are, in fact, conspicuous by their absence. The Committee reports the general impression that the standard is well within the powers of candidates who devote themselves whole-heartedly to their course of study. The examination on special subjects such as meat, structure of premises, and fevers are all strictly practical and conducted at appropriate centres. The diploma covers so wide a field that the balance of theoretical and practical is extremely difficult, and the Committee feels that time alone will show what modifications are desirable in the continuous adoption of the curriculum to the ever-increasing specialisation of public health work. The report was presented by the chairman, Sir John Moore, and Dr. Letheby Tidy was appointed a member in place of the late Sir Jenner Verrall. Dr. H. B.

Brackenbury was elected to take Sir Jenner Verrall's place on the Executive Committee.

Election Rules.—Dr. J. W. Bone, seconded by Dr. H. B. Brackenbury, carried a motion that it be referred to the Finance Committee "to consider and report to the Council whether the regulations for the conduct of elections to the Council (Section 8 of the Medical Act, 1886) and the 'Instructions to Voters' issued in connexion therewith might not be simplified and/or improved." Dr. Bone pointed out that there had been a steady increase in the number of voting papers rendered invalid and that this increase had been a subject of comment in the medical press. The regulation which covers the system of voting had been laid down by the Privy Council, but there were certain incompatibilities between the instructions in the leaflet and those on the ballot paper. It was not certain, for instance, whether the paper was to be sent off or received on the appointed day. Other regulations appeared to be trivial; for example, a paper was rendered invalid if it were folded in the wrong direction. Mr. H. L. Eason quoted the figures of the electorate and the spoiled ballot papers for several past years and showed that there was no real increase in the number of papers rendered invalid. He pointed out that the majority of faults for which papers had been rejected at the last election were faults of gross carelessness and not of trivialities. A large number of empty envelopes had been received, and many others had not been signed; only eight out of the total had been wrongly folded. Sir Robert Bolam pleaded for simplification of the procedure in order that electors should not be deterred from exercising their vote. The matter was referred to the Committee and the Committee was authorised to invite Dr. Bone to attend their meeting to discuss it.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ORTHOPÆDICS.

AT a meeting of this Section held on Dec. 3rd the chair was taken by the President, Mr. MCCRAE AITKIN, and Mr. W. H. OGILVIE opened a discussion on

MINOR INJURIES ABOUT THE ELBOW-JOINT.

He classified the minor injuries as partial fractures, partial dislocations, tears of the capsule, traumatic arthritis, and injuries to muscles. He discussed the anatomy of the joint, and demonstrated its division into a posterior trochlear and an anterior condylar portion, resembling those of the lower end of the femur; and pointed out the crescentic facet on the olecranon surface of the ulna, which met the outer lip of the trochlea in full extension; and the triangular groove between the outer part of the transverse groove dividing the greater and lesser sigmoid cavities. The strength of the capsule lay, he said, in the lateral ligaments. The synovial cavity in both radio-ulnar joints was sacciform, allowing for vertical as well as rotary movement. Intracapsular synovial pads were highly developed in the elbow and intra-articular synovial fringes were abundant.

The elbow was designed for use primarily in positions between 110° and 170° of extension and between half and three-quarters pronation. Only within this range was the olecranon portion of the greater sigmoid cavity fully engaged by the trochlear surface of the humerus. In flexion beyond 110° it rode in a groove which was shallow on the outer side, so that part of its bearing surface was exposed. The real humero-ulnar articulation was between the anterior parts of the trochlea and the coronoid articular surface of the olecranon. The olecranon part of the ulna combined the function of a muscular process like the great trochanter and a steadying guiding mechanism like that of the malleoli, the latter function only being called into play in the later degrees of extension. No real disability followed excision of the head of the radius; the ulna formed a platform on which the radius, bearing the hand, was free to rotate. The carrying angle was one of 10–15° and was present in the fœtus and at all ages; it diminished as the arm was flexed and was due to the varying depth of the inner lip of the trochlea. The only acceptable explanation of the carrying angle was the constant use of the half-pronation position. In the position of use—half pronation and nearly complete extension—the purpose of the carrying angle became apparent: to allow the radius to lie in a continuation of the long axis of the humerus. The position of rest—slight flexion and rather more than half pronation—was maintained by the brachialis anticus and from this position the elbow moved for its various functions.

Two distinct sets of uses would be distinguished: those concerning the outer world and those concerning the individual. The exteroceptive range of the elbow embraced the positions from about 90° to 170° of extension and from half to full pronation and involved such movements as attack, cutting food, climbing, and handling tools, and within this range stresses were likely to fall on the elbow-joint. The articular surfaces were fully engaged and the joint was stable. The proprioceptive range included all those movements concerned with the person; from a right angle to full flexion and from half to full pronation; the joint surfaces in this range were poorly adapted and the joint depended on ligaments, but was not exposed to great stress. Full supination was rarely used in extension or full pronation in flexion. Full extension did not occur in natural use. True hyperextension was rare. The apparent hyperextension in some women was due to the demonstration by extreme supination of an exaggerated carrying angle. Upward movement of the radius was checked by the interosseous membrane and downward movement by the oblique cord. The up and down movements of the radius invited comparison with the knee.

Fractures and Dislocations.

Most injuries of the elbow were due to indirect violence. The trochlea and still more the capitellum were carried well forward and apt to be fractured forwards into the joint. Full extension, however, was rare and could not be maintained in the face of force. Falls on the outstretched hand tended to flex the elbow and not to hyperextend it. In the ordinary fall on the outstretched hand the lines of force passed out of the limb posteriorly at an angle and caused supracondylar fracture or backward dislocation. The involvement of the radius depended on the degree to which force applied to it was passed on to the ulna. In a fully pronated and radially adducted position the interosseous ligament was somewhat relaxed and the radius was forced against the capitellum; the blow would therefore tend to fracture the radial head. In partial supination and ulnar adduction a dislocation at the elbow-joint or a fracture of the humerus would be more likely to occur. If the arm was partially flexed the blow would flex it further and the main force be taken on the olecranon; then the trochlea was driven like a cold chisel into the sigmoid fossa and fractured the olecranon transversely. Direct violence usually affected the ulna, but might break any bone.

Supracondylar fracture without displacement was very common in childhood and might be missed in a poor radiogram. Bruises and sprains caused very little limitation of movement in a child and only a little swelling. Treatment involved a few days of immobilisation with active movements from the start. If there was no periosteal stripping there was no risk of bone formation in early active movements. *Isolated fractures of the internal epicondyle* were due to muscular

violence and were seen in adults. The joint was not involved and the loose fragment was pulled down by the flexors. Correct position and bony union were seldom secured but the disability was slight. *Fractures of the internal condyle* were oblique, entered the joint, were common in children, and were usually due to falls on the outstretched hand. The broken fragment rode up and the displacement tended to recur when traction was released. *Fractures of the trochlea* alone were very rare. The *external epicondyle* was so small that only cracks or detachment of flakes could be included as isolated fractures. *Fractures of the external condyle* were much commoner and due to force from the ground transmitted through the radius. Cubitus valgus and ulnar palsy were common sequelæ of inadequately treated cases. *Isolated fractures of the capitellum* were rare, and as they were intra-articular there was no deformity, and the diagnosis rested on excessive limitation of function and swelling of the joint. The causative force was more probably direct. In general, direct fixation inside the capsule was undesirable. If the parts could not be fixed by posture or extra-articular screws, traction in flexion by a pin through the olecranon should be tried. *Partial fractures of the olecranon* might be detachment of flakes or fissured fractures without displacement. *Fractures of the coronoid process* were occasionally caused by muscular violence, but much more often by posterior dislocation. *Fractures of the radial head* might be due to falls on the elbow, but were more commonly due to falls on the outstretched hand. They were divided into three types: the first with loose fragments, demanding immediate operation; the second with gross deformity, usually requiring excision of the head; and the third a fissured fracture without much displacement. In the commonest type, however, the fragments retained their normal position. These fractures should be treated as sprains and active rotation started from the beginning. This often restored a full range of movement, whereas excision never gave more than 70 per cent. *Fractures of the neck of the radius* were usually due to indirect violence, and if correct alignment could not be obtained the radial head should be removed. *Fractures of the tubercle* were rare and the result of muscular efforts.

Forward dislocation of the head of the radius was usually associated with fracture of the shaft, but if isolated was usually the result of the radius striking a rounded object on the ground. *Partial subluxations* were not uncommon, but were hard to demonstrate without a stereoscopic radiogram. *Sprain of ligaments* was a clinical diagnosis and not a clearly defined injury; probably muscles were always involved as well. *Tears of muscles* were due to sudden unguarded movement, and could only be distinguished from partial fractures by the X ray appearance and the absence of crepitus. *Spurs of bone* were apt to appear in the muscles of this region in advanced years and the snapping of one of these might cause acute localised pain. *Traumatic myositis* might follow the prolonged and unaccustomed use of any muscle; the whole muscle was tender and showed soft crepitus.

Tennis Elbow.

Tennis elbow eluded classification. It occurred in patients who practised those sports and trades where the arm was suddenly jerked into full extension, while the hand grasped a large object: tennis players, fly-fishers, golfers, sabre fencers, and workers with hammers. The onset was rarely sudden; a gradual ache appeared in the outer side of the elbow, most marked in certain movements, and ceasing when the game ceased. A definite localised tender spot was found in the region of the external epicondyle and clenching the hand was painful, but passive movement was painless. The main theories of its pathology were: (1) tearing of muscles; (2) periostitis; (3) tearing of capsule, involving the external, lateral, or orbicular ligaments; (4) arthritis of radio-humeral joint; and (5) Osgood's bursitis. This bursa lay immediately distal to the external epicondyle, deep to the common origin of the extensor group. Mr. Ogilvie had been unable to find this bursa or to obtain any success by Osgood's operation. All bursæ were abnormal, for they were not present at birth, and might be developed anywhere in response to excessive movement or pressure. Mr. Ogilvie believed that the commonest cause of tennis elbow was tearing of extensor muscle-fibres at their origin from bone, with periostitis sometimes. The radial extensors came into powerful action in gripping movements in tennis. In the first stage the effusion of fluid, local hyperæmia, and round-celled infiltration caused pain and tenderness and were treated by firm pressure, massage, and rest. The second stage of early repair caused pain on certain movements only, aching, and a localised tender spot. Firm pressure by a pad smeared with iodex and strapping at 135°, and active movements, constituted the best treatment. In the third stage there might be adhesions calling for a manipulation such as Mills's. Patients usually came in the second or third stages, and the treatment suitable for one stage was quite unsuitable for the other. Focal sepsis must be sought, as few traumata ran a sterile course. Focal subinfection prolonged the second stage and made adhesions more likely.

There were other types of tennis elbow, however, and symptoms which could not be referred to tearing of the extensor carpi radialis longior. Sometimes there was a true inhibition of movement, causing the patient to drop things. This resembled the sudden giving-way of the knee, and was probably due to a similar internal derangement: a nipping of synovial fringes, especially those thickened by arthritis. Mild traumatic arthritis could be produced by overuse alone—e.g., the return to a strenuous game after a season's rest. Treatment was removal of the causative fringe.

Mr. JENNER VERRALL said that internal derangement as a cause of tennis elbow had long appealed to him, and he agreed with Mr. Ogilvie's remarks about Osgood's bursa. He regarded tennis elbow as possibly a muscular rupture in some cases but more often as a combination of circulating toxins and local trauma. In seeking Osgood's bursa one often found dense fascia between the common extensor origin and the head of the radius, and the opening-up of this explained the good effect of seeking Osgood's bursa as well as of Mills's manipulation, which undoubtedly cured about a third of the cases. Strains on the inner side of the elbow were strictly comparable with those on the outer side, and were nearly all due to tension on the flexor carpi ulnaris. Carried still further, this caused displacement of the ulnar nerve which often could only be cured by shifting the nerve. The forward-dislocated head of the radius did not limit flexion but nearly always caused chronic musculo-spiral neuritis, and it was most important, especially in children, to get the head back into place as soon as possible. After a month or two it might become quite irreplaceable. The construction of a new orbicular ligament with fascia lata was most satisfactory. Early operation was the only possible treatment for fracture of the head of the radius. Excision of the head in a movable elbow left a very weakened elbow, but early excision of small fragments was satisfactory. Fracture of the capitellum was not rare, and operation was the only possible treatment. Fractures of the internal epicondyle were not operated on often enough and were apt to limit movement.

Mr. WATSON JONES showed slides illustrating 5000 cases of elbow injury and pointed out that elbow injuries were most common and most significant in the second decade; in 94 cases of traumatic arthritis perfect cure had been achieved in 92. The problem was not how to cure but how to cure quickly. It was curious that one method or another was often continued as a routine without accurate weekly records of the range of movement. It did not matter what treatment was used so long as progress was checked by measurement. Massage did no good; aided active movements tended to arrest recovery,

passive movements were harmful, and manipulation under anæsthesia was disastrous. We were apt to be too anxious about rest; results would improve by steering a course between rest and movement. The patient was the best judge of the amount of movement needed. Fractures of the head of the radius had a grave prognosis. The results might be improved by more radical treatment; the disability was less after excision of the head than after more conservative measures. The limitation of movement was limitation of extension, not of supination and pronation. In fracture of the neck with angulation the head should not be removed but slung in position with an artificial ligament. Fractures of the internal epicondyle could also be produced by direct injury. Ulnar palsies only resulted from indirect injury. The capsule, if pulled in with the epiphysis, dragged on the ulnar nerve and so caused palsy. Treatment was to free the nerve and, if necessary, transfer it to the front of the joint.

Mr. WHITCHURCH HOWELL said that tennis elbow was the result of bad tennis, and rarely occurred in the professional player. He reported a case of myositis ossificans in the brachialis anticus in a man who fell from his horse and was dragged by the reins, and another of a tramwayman who had had no injury save the constant jerking he sustained in climbing the tram; he had developed two loose bodies in front of the joint.

Mr. R. C. ELMSLIE recorded two cases of tennis elbow; one in his own arm. Most cases came on very gradually indeed and the toxic factor played a large part. The sufferer was the player who went on playing hard tennis at an age when many people gave it up. There were many causes other than tennis; his own might be ascribed to wrenching club-feet. Very characteristic signs were the exact situation of the tender spot over the radio-humeral joint and the pain caused by passive forced flexion of the wrist and pronation and—in more severe conditions—forced extension of the forearm. The combination of the three caused most pain. Supination of the forearm with extended wrist was also very painful. He excluded cases with arthritis from ordinary tennis elbow. His own "elbow" had been cured by removal of a molar tooth with an apical abscess. He cordially agreed that a child whose elbow had been injured would find for itself the movements that were safe and would cure itself better than any masseur could. The masseur would pretend to do a lot and really do very little.

Mr. W. H. TRETHOWAN declared that nothing showed a more constant clinical picture than tennis elbow and that the pathology was equally constant. He himself had a tennis elbow due to prawning, which involved lifting weight in extension of the forearm and wrist. Osgood's bursa was nothing more than the extension of the synovial membrane of the radio-humeral joint, and one cause of pain was compression of this pouch by the extensor carpi radialis longior. Tennis elbow was always a traumatic synovitis of the radio-humeral joint. He did not believe sepsis was ever concerned. The results of treatment depended upon the stage at which each form of treatment was applied. Protracted cases were the cases which would not rest.

Mr. ROCYN JONES said the pathology of tennis elbow was little known. The lesion was produced by a combination of supination and extension. Mills's manipulation was very valuable in selected cases where there was a pronated arm with flexed wrist and fingers. The treatment was rest, heat, and massage, and, if these failed, operation. Fissured fracture of the head of the radius was difficult to diagnose, except by X rays; there might be some tenderness and elastic swelling; little treatment was required.

Mr. PHILIP FIGDOR emphasised the importance of active movements.

The PRESIDENT said that there was a very similar pain associated with the muscles arising from the internal condyle. Some cases were relieved by a pad and strap and others by manipulation.

Mr. OGILVIE, replying, emphasised again the importance of the exteroceptive range. Ankylosis should be in the exteroceptive position; the classical position was only useful to the man who needed two hairbrushes and wanted to get both hands to his mouth at once.

SECTION OF ANÆSTHETICS.

AT a meeting of this Section on Dec. 6th, with Dr. R. E. APPERLY, the President, in the chair, a discussion on

ANÆSTHESIA IN RECTAL SURGERY

was opened by Dr. J. K. HASLER. From the anæsthetist's point of view, he said, the surgery of the rectum was particularly satisfactory. In giving a general anæsthetic his ministrations were well out of the way of the surgeon, and if a regional or local administration was needed this part of the body was well adapted for it. Apart from operation for rectal cancer, much shock was uncommon, and the anæsthetist was seldom worried by a patient being in extremis. Of the two groups of rectal operations—the abdominal and the perineal—the former were mostly for dealing with malignant disease connected with the rectum; half of them were for colostomy, and the rest were abdominal resections or operations for insertion of radium into a high growth in the rectum and the associated glands. The surgeon required good abdominal relaxation so as to avoid unnecessary coils of intestine being constantly forced through the wound, and anæsthesia must be deep enough to allow of exploration of the abdomen if necessary in order to ascertain whether there were secondary deposits in the liver. Colostomy was often the precursor of a second operation, and the patient must be kept fit to undergo this in about a fortnight. A good general anæsthetic satisfied the requirements, but each anæsthetist would have his own preference, and should employ the one which yielded him the best results. A general anæsthetic was commonly given for the preliminary colostomy, and for the subsequent operation a spinal anæsthetic was employed in combination with some form of twilight sleep or a light general anæsthesia; but there seemed to be no reason why general anæsthesia should not be dispensed with altogether. Injection of a spinal anæsthetic between the third and fourth lumbar vertebræ caused anæsthesia well above the umbilicus, and gave good abdominal relaxation. Spinal anæsthesia did not always obviate chest complications, but the patients who developed chest trouble after it would probably have fared worse under general anæsthesia.

Perineal operations formed the second or larger group, and here the field for anæsthetics was more varied. The three most common complaints in this region were hæmorrhoids, fissure, and fistula, and these troubles had generally caused much anxiety for a number of years before operation, so that the patients had a characteristic mental state—that of long-continued suffering in silence. Many started to resist with the onset of unconsciousness, and complete relaxation was delayed, especially if the patient was alcoholic. They had to be deeply under the anæsthetic before the operation was begun, otherwise contraction of the leg muscles made it difficult to place them in the lithotomy position, especially when the sphincter was forcibly dilated. The general anæsthetic must at first be given liberally, but this rule did not apply to pure chloroform, whose use for operations involving the anus and the rectal sphincters had been widely condemned. If chloroform anæsthesia was not deep enough when the anus was dilated there was a risk of cardiac inhibition or reflex inhibition of respiration. Yeomans, of New York, considered that chloroform had no place in rectal surgery.

The forms of local anæsthetics used for perineal operations could be classified in three groups: (1) local infiltration of the operation area; (2) extradural anæsthesia brought about by caudal block and sacral block; and (3) intradural or various forms of spinal anæsthesia. In America the caudal block was often combined with trans-sacral block. At the Mayo Clinic intense anæsthesia was produced 10 to 15 minutes after the completion of the injection, and it was expected to last two hours. J. S. Lundy, of that clinic, reported 99 per cent. of successful cases in the smaller rectal operations with this method, and 75 to 85 per cent. in cases of carcinoma of the rectum. Dr. Hasler did not himself expect spinal anæsthesia to last longer than an hour; if an operation was likely to be prolonged, the spinal could be combined with a caudal block; this extra injection took but little time and certainly prolonged the anæsthesia. Recent papers by Pitkin and Kelly suggested that spinocain would be a useful anæsthetic for purely perineal anæsthesia. By tilting the body of the patient either up or down, according to whether the heavy or the light solution had been used, the anæsthetic effect could be limited to the pelvic region. But examination of the literature suggested the drawback that there was risk in altering the patient's position relative to the horizontal plane for at least two hours after the operation, though this risk could perhaps be reduced by using less spinocain. It was not always desirable to produce full relaxation of the sphincters in cases of fistula; it was usually necessary for the surgeon to be able to feel the sphincters while operating. Local anæsthetics, especially spinal ones, relaxed the sphincters too much.

Discussion.

Mr. E. T. C. MILLIGAN said that for many years it was thought that the value of an anæsthetic was enhanced if it relaxed the sphincter ani; and if it did not, the surgeon proceeded to stretch the sphincter forcibly so as to expose the piles. Now, however, the piles were withdrawn from the anus and exposed with dissecting forceps, which made such relaxation needless. But for extensive fistulæ in which the internal opening in relation to the sphincter had not been determined beforehand it was important to feel the tightly gripping sphincters, so that an anæsthetic which relaxed the sphincters was bad. This remark did not apply to simple fistulæ in which the relations of opening to track had been determined beforehand. He thought that both anæsthetist and surgeon should be familiar with all the possible anæsthetics for a given operation, so that a wise choice could be made. Operations for fissure, fistula, and piles were now perfect, and in choosing the anæsthetic the ideal was to banish apprehension before, pain and apprehension during, and pain after the operation. Though caudal block was ideal if it was reliable, he thought that in practice it was uncertain. Local anæsthesia was one of the best forms of anæsthesia for hæmorrhoid operations, but many patients were apprehensive, interpreting every movement as something that would produce pain, and for such rapid and simple operations gas-and-oxygen anæsthesia with preliminary sedative medication seemed the best means of blanking out consciousness. Low spinal or spinal anæsthesia limited to sacral nerves had advantages which made it valuable for operations on the perineum. It was controllable, and had none of the disadvantages of the higher spinal anæsthesia. Most of the bad results following spinal anæsthesia were due to improper selection of cases, and some were ascribable to faulty technique. Post-operative pain bore no relation to the method of anæsthesia.

Dr. A. L. FLEMMING asked whether it was considered that stovaine fixed more certainly and quickly than novocain. He would have thought that the administration of the anæsthetic with the patient in the sitting posture was dangerous. Dr. Hasler seemed to use only a small quantity of the drug. Pitkin apparently did not rely on the inclination or tilt of the patient; if he wanted a high anæsthesia he used a larger quantity of the solution.

Dr. W. HOWARD JONES said he did not know why stovaine was used so much in preference to novocain, which was much less toxic and irritating. The 10 per cent. solution of novocain had a specific gravity of 1·023, and the specific gravity of cerebro-spinal fluid was between 1·004 and 1·008. When the solution was injected into the cerebro-spinal fluid there was, opposite the point of the needle, an equal quantity of cerebro-spinal fluid, and so the specific gravity was reduced, the heavy solution becoming a lighter one. For a complete splanchnic block, 15 drachms of the 10 per cent. solution was injected between the second and third lumbar vertebræ, and the patient was then placed in the Trendelenburg position. The fluid would come to a halt at about the third dorsal segment. On going higher up there was a progressive decrease in the time the anæsthetic lasted, since the duration depended on the degree of concentration of the solution. With the new anæsthetic, percain, it was stated that spinal anæsthesia would last up to four hours, and even a solution of one-twentieth per cent. was effective. He believed it would be very valuable for rectal operations. The first case he had seen at hospital that day was a man of the navvy type who had been admitted as an "emergency" on account of perforated gastric ulcer, and was in intense pain. Dr. Jones had injected a one-twentieth solution of percain, flooding the subarachnoid space as far as the third dorsal vertebra. The pain disappeared immediately, and in ten minutes the abdomen was opened, the ulcer closed, and the abdomen was swabbed out without discomfort. For producing a complete splanchnic block 15 c.cm. were injected without withdrawing cerebro-spinal fluid and the solution would travel as high as the third or second dorsal vertebra. If cerebro-spinal fluid was withdrawn, the subsequent injection would travel higher.

Dr. C. F. HADFIELD expressed his surprise that stovaine could be caused to drop down by change of posture in the way Dr. Hasler had described. His own practice was to place the patient in the Trendelenburg position as soon as the injection had been made. He thought 45 minutes' operating time was all that could be reasonably expected of stovaine in the light form. Formerly he had used 1·0 c.cm. of a 10 per cent. solution, but now he used 0·6 c.cm., and he had noticed no reduction in the anæsthetic effect.

Dr. EVANS submitted that for hæmorrhoids and fistula nothing more than a fairly light anæsthesia was required—i.e., enough to keep the patient quiet and prevent him kicking. Given a good gas-and-oxygen anæsthesia the surgeon could do all that was required in comfort.

The PRESIDENT spoke of abdomino-perineal operations for carcinoma of the rectum, for which he sometimes had to give the anæsthetic—namely, spinal anæsthesia. At the end of the abdominal part of the operation, when putting the patient in the lithotomy position for the perineal part of it, the blood pressure, which previously had been satisfactory, fell considerably and was a cause of anxiety. Recently a surgical colleague at Middlesex Hospital had adopted the plan of doing the perineal part first—i.e., when the spinal anæsthesia was at its best—and concluding with the abdominal stage. The result had been extraordinarily good, and since doing this that surgeon had not lost a case.

Dr. HASLER briefly replied. He said that "light" and "heavy" solutions were relative terms; one contained glucose, the other did not. Both were heavier than cerebro-spinal fluid. With regard to depth of anæsthesia for these operations, he liked to have the patient well under, at the commencement especially, partly because of the general mental and physical state of the patient, partly because of the area of operation concerned. A patient who had had a spinal injection and had low blood pressure should be moved as little as possible for the hour or two following the incision.

SECTION OF OTOLOGY.

AT a meeting held on Dec. 6th the chair was taken by Mr. W. M. MOLLISON, the President, and a paper on

Radiological Diagnosis of Mastoid Disease

was read by Dr. ELSIE MANN. She described the technique adopted in examining the mastoid, and said she now used two lateral views as a routine; the prone position, although it had the advantage of showing the two mastoids on one plate, had not proved sufficiently useful to be made a standard practice. The exposure should be as short as possible when the patient was a child, and it was better to gain the child's confidence than to frighten him by using a clamp. A successful plate from a child under three was obtained more by luck than good management, and occasionally an older child would prove refractory to all persuasion, and would not keep still. Interpretation was not always easy. The mastoids were usually symmetrical but might be cellular on one side and acellular on the other. When they were cellular on both sides the cells were usually symmetrical, which was a useful thing to remember when trying to decide whether a space were an enlarged cell or an area of absorption. Superficial œdema, eczema of the meatus, and furunculosis might all cause blurring of bony detail, but in the absence of these conditions the radiologist could diagnose mastoiditis and give help which, though not infallible, was very useful.

Dr. GRAHAM HODGSON showed slides illustrating the

Diagnostic Value of X Rays of the Temporal Bone.

In one-third of the cases of otosclerosis, he said, X rays would reveal a loss of definition of the basal turn of the cochlea. In another third nothing abnormal could be seen, and in the remaining third there was some lack of definition which the radiologist could not distinguish with certainty from a normal variation. In some advanced cases the changes—which might be described as the difference between a raw grain of rice and the same grain boiled—could also be detected in the capsule of the posterior labyrinth. The extent of the changes did not seem to have much bearing on the symptoms, which perhaps depended more on the distribution than on the extent of the changes. Radiology could be of use in otosclerosis, however, in following the result of treatment and selecting the cases most likely to yield to it. In tumours and fractures the X ray was of definite value, as Dr. Hodgson's slides illustrated, and might detect a fistula in the external canal. Showing slides of mastoids, Dr. Hodgson suggested that a child might be kept momentarily quiet if the radiologist made more noise than it was making itself.

Mr. T. B. LAYTON spoke on the

Value of Radiography in Symptomless Mastoiditis.

He said there was no symptom of inflammation of diploetic tissue of the mastoid bone. All symptoms were evidence either of extension or of absorption of toxins or organisms. Radiology would detect the cases in which there were no symptoms. Any case of otitis media might actually be a mastoiditis, and if it did not quickly get well might be maintained by infection from the mastoid end quite as often as from the nasopharyngeal end. If it did not recover in three or four weeks the mastoid should be considered, and if there was any doubt the mastoid should be dealt with before the nasopharynx, or the case might become incurable by small operation. Caries was followed by sclerosis; radiography should in the future reveal the stage at which sclerosis began, probably two or three months after the onset of otitis media. Early operation gave perfect results without radical operation; after the onset of sclerosis there was less chance of getting the patient quite well. Clearing up the nasopharynx had given most unsatisfactory results in very many cases of running ears. Radiography would segregate the cases of symptomless mastoiditis, and show whether in otitis media the mastoid became inflamed and whether or not it would get well with the otitis.

Mr. T. H. JUST read a paper on the

Diagnosis of Acoustic Tumours.

Rare as these were, he said, every otologist must see them, because some patients complained at first of deafness, tinnitus, and giddiness. From the welter of sometimes contradictory findings he selected as outstanding symptoms: deafness, headache, falling or lurching, failing vision, giddiness, sensory disturbances—usually of the fifth nerve—vomiting, diplopia, paresis, and tinnitus. Cases of endothelioma and cholesteatoma of the meninges showed practically the same symptoms, due to pressure in the posterior fossa. The signs were connected with (1) the eye; (2) the cranial nerves; (3) the cerebellum; and (4) the eighth nerve—i.e., (1) disturbance of vision up to complete blindness; papilloedema; contraction of the visual fields, particularly to colour; spontaneous nystagmus, and diminished or absent corneal reflex; the nystagmus had been present in all of his 33 cases; (2) diminution in sensation or power in the area of the fifth nerve; (3) falling or unsteadiness, and weakness or loss of power in the limbs; (4) middle-ear deafness and loss of function in the vestibular nerve. The simplest test for the cochlear nerve was by means of a heavy and middle fork and a noise box. To be certain of a small diminution of bone conduction was not always a scientific possibility. Mr. Just had ceased to use the rotation test, as all patients showed spontaneous nystagmus and many were spontaneously giddy. The galvanic test was rather uncertain and he preferred the cold caloric test, which produced marked giddiness, errors in pass pointing, and marked and wide nystagmus if the vestibular nerve were working at all. Only the bad ear was syringed.

Dr. W. T. GARDINER read a paper on the same subject, dealing with Edinburgh cases. His findings coincided with those of Mr. Just. Deafness was usually the first symptom. Giddiness, absence of spontaneous pointing error, and spontaneous nystagmus had been the next most common, and the nystagmus was the most useful diagnostic symptom. The cold caloric test was valuable, and had been positive in all the ten cases who had permitted it. Mr. Gardiner thought, however, that the sound ear should be syringed as well as the other. The diplopia was due to the sixth nerve only. Loss of taste and sense of smell had been recorded in a few cases. The radiogram had given great help in two cases, showing enlargement of the internal meatus. Acoustic tumours should be suspected in cases of absolute deafness and loss of vestibular function associated with spontaneous nystagmus in all directions without Rombergism or spontaneous pointing error.

Cases.

Mr. C. GILL-CAREY showed a case of objective tinnitus in which a crackling sound, not exactly synchronising with the pulse, could be heard a foot away.—Mr. O. POPPER declared that this condition was due to rhythmic contraction of the tensor tympani; he himself could produce it voluntarily.—Sir JAMES DUNDAS-GRANT, Mr. L. GRAHAM BROWN, Mr. W. S. ADAMS, and Mr. GILL-CAREY commented on the case and quoted similar ones.—Dr. D. A. IMRIE showed a case of tumour of the nervus acousticus demonstrated by radiography. The difficulties encountered by the radiologist, he said, were the depth of the petrous portion and the impossibility of producing symmetrical views of two sides when the beam was passed along the internal canals. The tumour had been diagnosed by a stereoscopic transorbital view, as suggested by Conte, of Turin, the beam passing through both orbits. This method gave truly symmetrical views of both petrous bones and should lead to earlier diagnosis of acoustic tumours.—Dr. T. B. JOBSON pointed out that this patient had first been seen in the ophthalmological department, at a stage when it was really too late, and the operation had to

be one of great magnitude and difficulty. Diagnosis should rest on deafness, vestibular signs, facial paresis, and radiography; to wait for further symptoms involved great risk.—Mr. G. H. STEELE remarked that the case had been an obvious auditory fibroma before operation, yet at operation the growth had been found so deeply embedded in the cerebellum that the diagnosis had been doubted. Six weeks after the first decompression the cerebellum had extruded the tumour, but operation had failed because two large blood-vessels running across the tumour had been ruptured.

Mr. E. WATSON-WILLIAMS showed skiagrams of the temporal bone. One showed extensive destruction by cholesteatomata, and the second showed infection in the mastoid cells in acute otitis media. He agreed with Mr. Layton that the mastoid was not opened early enough or often enough, but not that it should be treated before the nasopharynx. The pharynx should have been treated before three weeks had elapsed; neither end should be treated to the exclusion of the other. In his experience radiology failed to help, and was vague in just those doubtful cases of mastoiditis where help was most needed. The otologist must rely on his clinical findings.

Mr. W. A. MILL showed a case of osteomyelitis of the temporal bone. The man had had a Schwatze operation performed for acute mastoiditis. A month later he had suffered from swelling in the temporal region, headache, and pain, all of which had persisted. Operation a month later had revealed granulations in the mastoid cavity, malleus, and incus, and diseased bone in the squama with thickened dura.

Sir JAMES DUNDAS-GRANT showed skiagrams from a man who had fallen down and been picked up deaf. There was a suggestion of a fracture in the back of the orbit, possibly the labyrinth had been fractured by transmitted force.

Discussion on Papers and Cases.

Mr. A. R. TWEEDIE said that clinical findings must be regarded as more valuable than radiography in deciding what to do in otitis media. He would not open an antrum while a child had offensive tonsils and adenoids.

Mr. LAYTON, in reply, said that radiology was only one piece of evidence in mastoiditis, and that he found it valuable in cases where there was no other evidence. He did not believe that post-aural drainage was a valuable thing if there were no disease of bone. The only way of finding whether bone was involved or not was by radiography. Removal of tonsils which would not be removed save for a running ear never gave any good result; he would not operate on the nasopharynx while an acute infectious process was going on.

Sir JAMES DUNDAS-GRANT urged the value of the unilateral galvanic test for acoustic tumours, with the cathode on the back of the neck and the anode on the ear, and advocated his cold air apparatus.

Mr. TWEEDIE agreed that rotation was not of much value but still hoped to get something from it quantitatively. The galvanic and caloric tests depended very much on the technique. The first thing to note was whether the leaning or the nystagmus appeared first. In middle-ear cases it was possible to get a hyposensitive peripheral organ by the caloric test and a hypersensitive vestibular nerve by the galvanic test. The galvanic test result was in direct proportion to the integrity of the ganglion of the vestibular nerve. If the resistance were adjusted the patient would not suffer from the test.

Mr. S. SCOTT said his experience had differed from that of Mr. Just in that the galvanic tests had proved of great value to him; details of technique were very important.

Mr. BROUGHTON BARNES asked whether any changes had been seen in the middle ear.

Mr. JUST, in reply, said he had had no evidence of middle-ear disease in the affected ear.

SECTION OF PSYCHIATRY.

AT a meeting of this Section held on Dec. 10th, the chair was taken by the President, Sir ROBERT ARMSTRONG-JONES. Members of the Section for the Study of Diseases in Children and of the Child Guidance Society attended this meeting.

Dr. BERNARD HART opened a discussion on

THE DIFFICULT CHILD.

He defined the difficult child as one who presented obstacles to the achievement of that internal and external adaptation which constituted the aim of nurture and education. The point of view taken towards him had changed from an ethical to a physical and then to a psychological one. The difficulty had been ascribed to congenital weakness of moral fibre, diseases or defects in various organs, and lack of nervous stability, but these things never filled the whole picture, and failure of perspective must result from concentrating on them. The modern view was that the trouble was similar to that underlying functional nervous disorders, and that the difficult child was likely to become the neurotic adult. There was a failure in adaptation of the individual as a whole and not a disorder of any one system. The trouble could only be fully understood if psychological conceptions were brought to the aid of physical and chemical conceptions. The symptoms displayed by the difficult child were due to a fault in his reaction as an individual. Delinquency and behaviour anomalies were included as well as nervousness and needed treatment along the same lines.

The Child Guidance Movement was an attempt to cope with the problem along those lines. It employed a team of workers, including a psychiatrist, psychologist, and social worker, for it was essential to know much about the child, his mental and physical make-up, his home- and school-life, and the people he met in both environments. In some cases the external agencies must be modified. Team-work of this kind was always somewhat repugnant to the clinically minded physician, even when the team was welded together by the method of the conference. There was also a fear lest the social worker tail should wag the psychiatric dog, but all who had had experience of the social worker's aid would realise that this risk was well worth taking.

The Point of View of the Pædiatrist.

Dr. HECTOR CAMERON described the difficult child as a problem in management, physical culture, and metabolic instability, subject to a vicious circle of conduct and metabolic disorder. His low fat tolerance had long been recognised; great emotional excitement or physical exertion and states of infection caused exhaustion of the slender glycogen resources of the body, or glycopenia, in which condition metabolism of fat was incompletely carried out and intermediate products appeared. In this state vasomotor pallor, amyotonia, yawning, furring of the tongue, nausea, instability of temperature curve, low muscle tone, fainting, and indefinite aches and pains were the rule. Often vomiting dominated the picture; sometimes it was absent or only occasional. In between attacks the child was full of nervous energy, often squinting or stammering, pale, troublesome, incontinent of urine, a bad sleeper, and restless. The hepatic and muscular glycogen played an important part in determining the sugar content of the blood. Opposition, irritability, apprehension, terror, loss of confidence, and loss of the power to concentrate were characteristic mental states both of the nervous child and of insulin hypoglycæmia. The metabolic disorder often expressed itself in a nervous exacerbation. An excitement, a fright, a great intake of fat or an illness might each produce a deterioration in nervous control, showing itself as a failure of concentration culminating in a confusional state; increased opposition and irritability; night terrors, enuresis, or a bout of vomiting. An attack on the metabolic

disorder should precede psychiatric attempts to adjust conduct. An antiketogenic diet, glucose at short intervals, a petrol mixture with low fat and high sugar all gave good results. There was often an exacerbation during the normal sugar shortage of the night. This might be why the child got up tired, yawning, with lines under his eyes, fussing and worrying over little things which later in the day gave him no trouble.

The Child Guidance Council.

Dr. W. MOODIE said that "child guidance" had unfortunately come to suggest interference with the parent's duties. It had acquired an arbitrary meaning: a team method of approach to the study of behaviour problems of children. Workers had found that these problems could best be approached from four aspects: the physical, the temperamental, the intellectual, and the environmental. In practice the psychiatrist usually did the first two, the psychologist the third, and the social worker investigated the history and environment. Sometimes a pædiatrist undertook the first line of approach. The ordinary practitioner, if he was willing to give the time, could obtain in his consulting room a history and description of the child's environment, but even if he visited the home he did not usually see how the child and its parents behaved towards each other on many different occasions, as the social worker could. Moreover, it demanded a great expenditure of time to sort out and arrange chronologically the confused and often inaccurate statements of the relatives; this could quite well be done by the social worker. Intelligence quotients were inaccurate, and gave only a vague idea of the child's abilities, but the trained psychologist obtained much more information than this as to the child's mental attitude towards his environment, his attack on problems, and reaction to failures, and also interpreted educational reports. Direct questions to the child about his emotions were harmful, and provided just that limelight the desire for which was the basis of so many problems. The amount of psychiatric investigation carried out at a clinic depended on the age of the child; the younger the patient the less the psychiatry. When all the reports had been collected a case conference was held to decide on treatment. To the conference were invited interested parties: teachers, doctors, social workers, and students. Conferences were useful for instructional purposes. The psychiatrist delegated to suitable workers the appropriate branches of treatment. The social worker tried to modify the home environment and, difficult as this was, achieved success often enough to make it worth while. Trained workers soon became able to estimate the chances of success. The psychologist would help the child over any educational difficulty by special tutoring. Further conferences were held from time to time to discuss progress. The social worker's visit was a friendly one and did not give the impression of making inquiries. She could be used to produce an experimental observation of temperamental reactions—an object which had not been achieved by any of the many methods of psychological investigation devised for the purpose. Although cumbersome and costly, the team method was not one lightly to be set aside, for it was a valuable experimental and therapeutic weapon.

Dr. EMANUEL MILLER confined himself to a group of children in which there was no demonstrable physical disorder which could reasonably be regarded as primary, although not denying the metabolic basis of conduct disorders. He briefly described the work at the Jewish Child Guidance Clinic. The great difficulty, he said, was the relating of the disturbance to the environmental error from which it was supposed to have arisen. A behaviour disorder often corresponded with an error in the home or school, but the mere existence of such an error was not enough to account for the disorder. The family, though socially a unit, was largely a discordant collection of individuals pulling in different directions. The complicated dynamic perplexity of the situation on both sides was important. A child might steal from one parent and not from the other, or steal one class of objects only. It was difficult to believe that these phenomena were poised on a carbon atom. Circumcision or the weaning of the baby might cure a child in the most lurid home. The social situation was a stimulus to the child, but what happened was the reaction to a situation that had gone before, and the removal of the stimulus did not necessarily cure. However carefully parents avoided favouritism, "foundling" phantasies or feelings of "not being wanted" would often arise from such things as position in family or physical peculiarities. Nothing could more readily stimulate disorders of behaviour. To differentiate between cases which were within and those which were without the realm of social correction was difficult. If the reactions were infantile the condition was probably a response to something that had gone before, by the mechanism of the conditioned reflex. Magical and symbolic gestures should be recognised and differentiated from habit spasm and rheumatic movements.

Lay Psychological Study.

Miss FILDES (Child Guidance Council) said that the problem must be studied from the point of view of practical expediency, and it was waste of the doctor's time to do much that was necessary if the difficult child was to be adjusted in some circumstances. One direction in which difficulty might lie was the intellectual capacity, and this field belonged primarily to the lay psychologist trained in the investigation of intellectual and emotional processes. Intelligence quotients were useful and very much abused; they were most abused by people who took short cuts to them and failed to analyse the material from which they were derived. A child subnormal or supernormal in general intelligence found normal adaptation extremely difficult, and was apt to develop superadded emotional situations. Special abilities and disabilities also went to make up problems. Here again the lay psychologist could be of great use. Inability to speak or read could be analysed and dealt with by the trained layman in a team; he could also analyse the inherent and underlying temperamental factors underlying the child's behaviour. Much of the investigation was carried out by observing the way in which different children reacted to standard tasks under standard conditions; this revealed many general traits which might be the cause of the behaviour difficulty. The team psychologist could also investigate and deal with school problems.

The PRESIDENT spoke of the difficulty of getting the parents to admit that backward children were in any way abnormal, and of the difference between standards of behaviour in different strata of society. Extreme types of difficult child, he said, were easy to recognise, but there was a large, intermediate group which was difficult to recognise and treat; they were human butterflies, easily led, and hard to interest. The parents must not be mere spectators of official interference.

Encephalitis and Dyspituitarism: the Value of Bulbocapnine.

Dr. E. R. HILL spoke of chronic epidemic encephalitis and non-encephalitic dyspituitarism, conditions characterised by crude and uncontrollable behaviour responses, exaggerations of the crude outbursts seen in normal children. McDougall's theory of instinct and emotion explained these cases satisfactorily. The optic thalamus underwent an exaggeration of its functions in these cases. Bulbocapnine controlled the aberrant behaviour for several hours without any other apparent effect. Dr. Hill quoted a typical case to illustrate the action of the drug. Patients became quiet and normal within ten minutes of a forcible injection of the alkaloid. The dose was followed by a light somnolence; there was some evidence that this was natural sleep, not comparable with the usual narcosis after a drug. There were no toxic or cumu-

lative effects, and tolerance was very slowly established, if at all. The patients relapsed when the drug was discontinued.

Behaviour disorders might occur in three types of dyspituitarism: (1) patients with increased activity of the anterior lobe, and a tendency to gigantism; (2) those with diminished activity of the posterior lobe and the dystrophia adiposo-genitalis syndrome; (3) mixed types. These disturbances were congenital, but formed a suggestive link between the mental and physical aspects of emotion.

Discussion.

Dr. D. W. WINNICOTT said that the scientific approach to the difficult child must come from a study of the child itself, whose unconscious had very great power over his life, and was not always dealt with sufficiently. All the dreadful things seen in the post-encephalitic child were present in the normal child, but controlled by the ego. Any approach which did not include the unconscious of the child was unscientific.

Miss MARY CHADWICK said there seemed to be excellent equipment for diagnosis but little for treatment. Explaining repressed tendencies would not cure anyone. Questioning a child about its emotions would not give much response. Something must be done to release its emotions and phantasies. One German clinic treated the parents when their neurosis was held to lie at the root of the child's trouble.

Dr. N. H. BURKE analysed 30 case-sheets from the Jewish clinic to illustrate methods of treatment. Home had been wrong in 23 cases; the mind in 24; the school in 7; and the bodily health in 14. Home troubles included parental disharmony or neurosis and injudicious handling; or minor difficulties, such as sleeping accommodation. In a few cases tonsils and adenoids had to come out; there were rheumatisms and debilities, a few heart cases, and a case of tuberculous joints. There had been mental dullness in a few cases; two had been defective, and one excessively intelligent. All had had various degrees of anxiety, fear and neurosis. In two cases nothing could be done with the parents, but partial adjustment had been obtained in 24 and good results in 4. Some cases needed a residential or defective school, and removal from impossible homes; others needed holidays from home—partly for diagnosis, and partly to give the mother a rest; some ought to go to better schools; others were benefited by adjustment of sleeping arrangements, admission to scout or girl guide troops, or psychotherapy. The cinema had only once appeared to have any influence.

Dr. J. D. REES said very few people in this country were doing serious analyses of children, and those who had done it in Vienna were giving it up. Doctors doing child guidance must have the analytical point of view or "environmental treatment" would be "woolly."

Dr. MARGARET LOWENFELD said that removal to a more favourable environment might improve the child, but on return he would react to the same difficulty in the same way. The child who could not deal with a difficult parent would fail later in life to deal with a difficult employer. The only method of treatment was to provide a system of play by which children could build their phantasies and slowly come to understand the reasons for their own behaviour. The child would build within itself a world which expressed its need. The emotional difficulties of childhood were associated with biochemical and physical disturbances, particularly of posture. The release given by the phantasy method was correlated with a change in the biochemical and physical picture. The problem could be approached by either path: physical or emotional.

Dr. HART, in reply, emphasised that we could not afford to neglect or be intolerant of any one of the facets of the problem.

Reviews and Notices of Books.

PSYCHOLOGY.

An Introduction to Individual Psychology. By ALICE RAVEN. Cambridge: W. Heffer and Sons, Ltd. 1929. Pp. 145. 3*s.* 6*d.*

THE title of this book, though more or less accurate in describing its thesis, is somewhat misleading in these days, when the term individual psychology has become synonymous with particular views expressed by Dr. Alfred Adler. But that is scarcely the business of the general reader, who can let the adherents themselves defend the pedestal of the idol. The book is written in a clear style, and is illustrated by a pleasant cultural breadth, but its eclecticism is a little dangerous. For example, while endorsing the very partially dynamic psychology of W. McDougall as regards the instincts and their related emotions, the author accepts fully the foundation principles of Freud's psychopathology, the power psychology of Adler, and the type psychology of Jung. Treating each system superficially, and gleaning what she feels to be most useful, she constructs a fairly coherent system of psychology. But careful analysis of her origins will bring out the glaring inconsistencies of this eclectic method. However, the very readable analyses of the plays of Æschylus, and of the character of Meleager in Swinburne's Atalanta, makes amends for he offences against established systems and the lack of logical coherence in her philosophy. Those who are familiar with the schools of thought from which it has been evolved will find this little book an interesting study.

PHYSICAL THERAPEUTIC TECHNIC.

By FRANK BUTLER GRANGER, A.B., M.D., Director of Physiotherapy, United States Army. London: W. B. Saunders Company. 1929. Pp. 417. 30*s.*

On Prescribing Physical Treatment. By MATTHEW B. RAY, D.S.O., M.D. Edin., Physician to the St. Marylebone General Dispensary. London: William Heinemann, Ltd. 1929. Pp. 179. 10*s.* 6*d.*

Dr. Granger's book is intended for the general practitioner who wishes to apply physical treatment only occasionally. It is chiefly devoted to electrical methods, and hydrotherapy and massage are passed over somewhat sketchily. The first part of the book is encumbered with elementary theoretical matter which the physician with any aptitude for the use of electricity will not need, but the last 17 chapters describe in close detail the treatment of various pathological conditions and should be helpful. Two useful features are Dr. F. A. Davis's synopsis of physiotherapeutic methods, a tabular description of the chief devices in use to-day, and the chapter on a hospital department of physical therapy, which suggests a basis for the initial foundation of a physical treatment branch, with lists of personnel and apparatus. The work is copiously illustrated, but would have been improved by a more careful selection of the pictures. It suffers from the common fault of containing a large number both of manufacturers' woodcuts, and of photographs of treatment which do not teach anything in particular.

Dr. M. B. Ray in his smaller book places balneotherapy in the foreground. He deals very little with theory, and arranges his material according to method, giving the indications for each kind of treatment as he describes it. This presentation has the defect that the practitioner who wishes to treat a certain condition must turn up several places in the book and collate the information. In many cases the descriptions have been curtailed to avoid a repetition which would have been useful, and the index is unfortunately not complete enough to support this method of arrangement. Nevertheless, this short text-book of medical hydrology and, to a lesser degree, of electrotherapy and other physical methods, is com-

comprehensive and crisp. Dr. Ray writes incisively and wastes no words, and his intelligent paragraphing, frequent side-headings, and individual page headings make the book easy to read.

SKIN DISEASES.

Grundriss der Arzneimittellehre für die Behandlung von Hautkrankheiten. By Dr. K. FÜRST, Frankfurt a/M. Leipzig: Georg Thieme. 1929. Pp. 144. M.6.

THIS small manual, which deals concisely with the external remedies in common use for the treatment of skin diseases, will be much appreciated by the thoughtful and scientific therapeutist. The author, formerly a pupil of the Herxheimer school at Frankfurt, wisely confines himself to a description of only 28 of what may be called the fundamental therapeutic elements that have withstood the test of 50 and more years of dermatological practice. They are arranged in alphabetical order, from arsenic to zinc, and each substance is considered from the aspects of its medical history, its chemical formula and attributes, its pharmacological actions, its therapeutic indications and modes of applying, and finally its toxic effects (if any) and its contra-indications. This methodical arrangement is conscientiously adhered to throughout, and the result is easily comprehended and memorised.

The work will, however, be found most useful as a book of reference. The classical formulæ for arsenic pills, lead plaster, and boric ointment, and the antidotes for cases of poisoning from the use of any of them, could not have been collected with more care or more concisely described. The intending purchaser will do well to note that the book contains no reference to any of the complicated modern remedies which Ehrlich and his school have introduced. There is no mention of salvarsan. There is an appendix of the literature of each medicament, and the index deals not only with these but includes also the diseases for which they are indicated. The work therefore serves both a pharmacological and therapeutic purpose.

MODERN METHODS OF TREATMENT.

Second edition. By LOGAN CLENDENING, M.D., Associate Professor of Medicine of the University of Kansas; Attending Physician, Kansas City General Hospital. London: Henry Kimpton. Pp. 815. 45*s*.

THE efforts being made to rescue the practice of therapeutics from the empirical methods of the past and to establish it on firm physiological and pathological principles are bearing fruit, but we are still much in the transition stage. Authors of text-books on therapeutics have to compromise between a pure exposition of principles on the one hand and a bald and dogmatic statement of methods on the other. Dr. Clendening attacks the problem with a decided modern bias which increases the value of his book as an impartial survey of present-day views on treatment, but is rather a disadvantage if an index of therapeutics for rapid reference is desired. A profound respect for the work of the pioneers and an extensive knowledge of more recent research lead him at times to submerge his own personality in a welter of rival opinions and conflicting theories. The passages in which he gives his own opinions are written in a vigorous and entertaining style, and indicate a wide clinical experience and a sound and conservative judgment.

The book, which deals only with medical treatment and omits all branches of surgery and diseases of the skin, is divided into two parts. The first deals with the methods used in therapeutics, and consists of chapters on drugs, sera and vaccines, gland extracts, dietetics, hydrotherapy, psychotherapy, and miscellaneous procedures. In two short chapters on radiotherapy and massage an attempt is made to describe the elements of technique in these very special subjects. In the chapter dealing with drugs the various remedies are arranged in groups according to their action—a method having certain advantages but apt to be confusing for such widely useful substances as the iodides. Twenty-two pages are devoted to digitalis, but the author holds that in practice "the only sensible way to exhibit digitalis is to return to the method of Withering."

The second part of the book takes the form of an index of treatment and the various diseases are again arranged in groups: diseases of metabolism, diseases of the kidney, and so forth. In both parts of the book a fairly extensive bibliography is provided at the end of each chapter, mainly compiled from American publications. A rather serious fault is the lack of cross references in the text between the two parts of the book. Often mention is made in the second part of methods which are recommended in the first. For instance, in the section on dietetics the Minot-Murphy diet is described in detail; but no reference to this is made in the directions for the treatment of pernicious anæmia, though the method is briefly alluded to and a number of recipes are given. In a volume arranged on this principle a complete system of cross references is very necessary, and its omission is not covered by the excellent index.

Dr. Clendening deserves praise for the admirably compact and lucid way in which he summarises modern work; the first part of his work is enriched by well-chosen quotations from original sources.

ELEMENTARY ANATOMY AND PHYSIOLOGY FOR NURSES.

By P. M. LODGE. London: J. and A. Churchill. 1929. Pp. 82. 3*s*. 6*d*.

THIS little book, based on lectures given at Birmingham to probationers, seems to us to be an exceedingly suitable work for the purpose. It is simply and clearly expressed and not burdened with a mass of wearisome (because misunderstood) detail, like so many of the manuals for nurses. It is calculated to give the probationer—and perhaps her senior colleague—a good and useful idea of the main structures and activities of the body. Its general value is not appreciably lessened by a few slips which can easily be corrected in a future issue.

THOSE TEETH OF YOURS.

By J. MENZIES CAMPBELL, L.D.S., D.D.S., F.R.S.E. London: William Heinemann (Medical Books), Ltd. 1929. Pp. 141. 3*s*. 6*d*.

THIS book is described as a popular guide to the teeth. It well fulfils this description and is an excellent example of a book suitable for the layman. Books on medical subjects intended for a lay audience fall into two categories—the brief, elementary manual couched in simple language which is intended for the personal guidance of those who read it, and the more advanced book suitable for teachers or those of more than average technical knowledge. This book is an example of the last-named type. It covers a wide range and the author supplies more than a practical guide to dental hygiene; he has included an interesting note on the historical side of dentistry. In discussing the treatment of dental disease Mr. Campbell goes into such questions as the different ways of filling teeth, anæsthesia, the various forms of dentures, and the advantages of gold and vulcanite. This is done not with the idea of usurping the province of the dentist but in order to give the reader some idea of the scope of his work. A diligent reader of this book might prove a somewhat captious patient if his professional attendant adopted a procedure not in accordance with Mr. Campbell's views, but on the whole a patient not wholly ignorant of the technical side of dentistry is more likely to coöperate intelligently in any treatment. Mr. Campbell has managed to pack much information into a little over 100 pages. Some of it will be new to those many medical men who have had no special experience in dental work, and they will find it highly profitable to familiarise themselves with the mechanical problems at issue and how they are solved.

THE LANCET.

LONDON: SATURDAY, DECEMBER 14, 1927.

SOMNAMBULISM AS A DEFENCE.

THE trial of MAGGIE ALEXANDER at the Hampshire Assizes at the end of last month was noteworthy for the unusual defence of somnambulism as an answer to a charge of murder. There was definite evidence that the accused sometimes walked in her sleep; there was also strong evidence that she had been in a state of acute mental distress and despondency. It is interesting to observe the attitude of the criminal law towards these two conditions. Do both of them amount to legal insanity, or were they possibly alternative defences?

Briefly the story told at the trial amounted to this: the accused had been told by her parents to break off her association with a man with whom she had become infatuated; unless she did so, they said, the home would be broken up, she would have to find a permanent situation, and her little boy would have to go into an institution. After she left home to go to her work next morning, the boy was found lying on the bed with gaping wounds in his throat; a blood-stained razor was discovered in the room. Asked by her mother why she had killed the child, the accused said she thought he would be better off. It was understood that four years ago she was jilted by a young man a few days before the date fixed for her wedding. The crux of the case was the mental state of the accused at the moment when she killed (as the defence did not dispute she did) her child; the observations of Mr. Justice CHARLES on this point will be mentioned later. Important evidence was given by Dr. WATSON, senior medical officer of Brixton Prison. He agreed, in answer to defendant's counsel, that it was possible that the killing occurred in a condition of somnambulism without the woman remembering or knowing anything about it. He had not personally met such a case nor read of one; he would not call it impossible but he would say it was improbable. He had had two long interviews with the accused in the prison and had formed the opinion that she was not insane. From her medical history he thought she was a somnambulist; he believed her statement that she had no recollection of committing the act, but this might be due to the suppression in the mind of a distasteful act—a very common feature in such cases. In answer to the judge, Dr. WATSON said that a woman walking in her sleep would not have her mind consciously functioning; although in a medical sense she might not be insane, she would not know the nature and quality of the act she was committing nor would she know that the act was wrong. Mr. Justice CHARLES, a judge of strong common sense and considerable experience in criminal law, left the matter to the jury in the following way. If the woman was so distraught that she did not know what she was doing, he failed to see how she could be guilty. If, on the other hand, she killed her child simply because she was miserable, in a fit of spleen or disappointment, or because she thought the boy was going to be taken away from her, then she did it knowing that she was doing it and must not do it, and in that case the jury must find her guilty. If they accepted the suggestion—and it was rather more than a suggestion—that the accused was a somnambulist, that she committed this act in a state of somnambulism and therefore did not know what she was doing, that she did not appreciate the nature and quality of the act, that she did not know she was doing it at all because of this somnambulistic state from which she unquestionably suffered, then their duty would be to find that she was guilty but insane. The judge added that, if they had any honest doubt whether the killing were done deliberately, intently and consciously, or whether it was done under the influence of somnambulism, then the prisoner was entitled to the benefit of it. The jury, after a brief absence from court, returned a verdict of guilty but insane.

The case gives rise to two comments. First, the state of somnambulism is not a state of insanity. A sleep-walker is not insane either in a medical or a popular sense. It is not the act per se which the judge and jury must consider, but the state of mind which prompts, and manifests itself in, the act. A sleep-walker is not to be punished for an act done in sleep. It is a difficulty of MAGGIE ALEXANDER'S case, so far as the available reports of it go, that we do not know whether the jury thought she killed the boy while she was awake but in a state of mental instability, or whether she killed him while in her sleep. The second comment arises over the ridiculous formula "guilty but insane," to which the law still clings though the Atkin Committee on Insanity and Crime condemned it six years ago. "Guilty" connotes criminality; insanity negatives the existence of the criminal mind. A finding of insanity is an acquittal. The legal questions of insanity and crime are complicated enough without perpetuating a form of verdict which is illogical and a fallacy. Is there any hope that in the impending reform of the law of lunacy a brief clause can be inserted to remove this unnecessary element of confusion?

INFECTION BY FOMITES.

IN the course of a serious discussion a medical officer of health of considerable standing said he had never been able to trace the origin of a single case of scarlet fever. Although this statement obviously needs qualification as regards secondary cases and return cases, and those occurring in milk-spread epidemics, it may be taken to represent the experience generally of people actively engaged in public health work. What is true of scarlet fever is true of many of the cases of other infectious diseases—certainly of those met with in this country. We know that missed cases and carriers are often responsible for spreading infection but informed opinion wavers over the importance of fomites—just as uninformed opinion has always wavered over the probable meaning of this peculiar word At present it is the fashion not to lay much emphasis on the rôle of infected articles, but it must be confessed that the grounds for disregarding it are not abundant. That fomites *can* spread infectious disease has been proved over and over again; that clothing and especially underclothing and bed linen—articles which come into the closest possible contact with the skin—are able to maintain viruses in activity, has been demonstrated by numerous observers. In a classical report published in 1886, Dr. H. F. PARSONS quoted the experience of medical officers in various parts of the country where woollen rags and mixed woollen and cotton rags were used in the manufacture of shoddy,

rag-flock, and similar substances. In 1880 Mr. GREENWOOD, the medical officer of health of Ossett, in Yorkshire, had attributed a case of small-pox to infection from rags which the patient was sorting. Dr. GOLDIE, medical officer for Leeds, had given similar instances; in Gloucestershire the source of small-pox among women at the shoddy mills at Chalford and Brinscombe in the Stroud Valley was thought to be rags. Medical literature yielded many other descriptions of outbreaks of small-pox among rag-sorters at paper mills in different parts of the country, traced to the use of calico rags, evidently derived from underclothing and bed sheets. The mills making the best writing-papers from white rags were especially affected, and it is noteworthy that rags used for this purpose are cut up by hand. Since then there have been so many instances of small-pox being spread by fomites that belief in this method of spread is now general. The recent Hendon outbreak showed that laundry workers are in danger from infected garments, and we have plenty of evidence that the virus of small-pox can survive for considerable periods.

Reading into PARSONS'S 1886 report the new knowledge that typhus fever is lice-borne we are fully prepared to believe in his fatal case of typhus contracted by a rag-sorter from rags. MURCHISON had earlier observed that laundry-women are especially liable to contract this disease without direct communication with the sick, and text-book writers had accepted the view that clothes and bedding may become vehicles for the transmission of typhus. We now know that lice infected with virus of typhus can survive only for a limited period without getting food in the form of blood, and in certain other diseases there are factors which limit the danger of infection. Thus when a serious invasion of this country by cholera was feared about 1890, the Local Government Board made regulations requiring the disinfection of imported rags; but according to present opinion any such danger would be minimised by the facts that the cholera vibrio is readily destroyed by drying and is easily crowded out by saprophytic micro-organisms, so that contamination must be recent to be effective. Typhoid fever, on the other hand, may be contracted by handling clothes of patients which were stained with fæces or urine quite a long time ago. PARSONS was further able to record four cases of blood poisoning among agricultural labourers due to the handling of infected waste from rags which were spread on the land as manure, and evidence is available on the spread of scabies by rags.

For many years the Government of South Africa have required that all second-hand clothing and rags should be adequately disinfected before admission into the country, and lately the administrative arrangements have been tightened up. In South Africa there is a considerable trade in second-hand clothes; the natives coming into towns and undertaking industrial occupation resort to such European clothing as can be obtained at a price within their means. Doubtless the medical advisers of the Government have been right to ensure disinfection to avoid any spread of small-pox and other diseases in a semi-civilised community where they would be difficult to control, but recently similar regulations have been enacted in a country where the same conditions do not apply—namely, the Irish Free State. When, a week or two ago, a question was asked in the British Parliament concerning the need for disinfecting imported second-hand clothing, the official reply indicated that the precaution was held unnecessary. This answer seems to be based on the considerations that most of the small-pox present in this country is of the mild type and due to the spread of infection from case to case, that recent outbreaks of small-pox imported from abroad have been attributable to definite cases of the disease, and that of late years no instance of small-pox due to imported infected second-hand clothing has been traced nor has this source given cause for suspicion. In these circumstances it is considered inadvisable to burden importers with the trouble and expense of disinfection.

THE CENTRAL BUREAU OF HOSPITAL INFORMATION.

THE origin of the Central Bureau of Hospital Information is of historic interest. It will be remembered that in 1914 a Hospital Economy Committee was set up by the War Office as a check on expenditure in the hastily improvised institutions under the control of persons inexperienced in administration. Remarkable differences in the consumption, especially of two articles, tea and soap, were observed in the various institutions visited; similar observations were made with regard to dressings, drugs, and articles of food, and soon it was possible to demolish the argument which assumes that because hospitals deal with patients whose requirements differ greatly, it is impracticable to establish standards of consumption. The Hospital Economy Committee proved up to the hilt that, without reliable relevant figures, an administrator cannot exercise effective control over his institution, but is at the mercy of his subordinates. Eventually all must bow down to returns which show with remorseless accuracy the expenditure of material or money on the performance of some unit operation, whether that be the supplying of bread to 100 persons for one day or of soap for the cleansing of 1000 articles. The close contact established between the Economy Committee and the voluntary hospitals during the war was in danger of dissolution on the declaration of peace and the gradual demobilisation of the military establishments. It was, therefore, fortunate that the Joint Council of the Order of St. John and the British Red Cross Society provided a bridge, and by the establishment of a Hospital Services Department kept available much that had been learnt during the war. This department at once took up the task of surveying the work and finances to the voluntary provincial hospitals, giving statistical information in a report published each year. The preparation of this provincial report naturally established a certain degree of contact between the individual hospital and a central body, and a good deal of imformation of a useful administrative character was collected. It was not, however, until a junction was effected between the Joint Council and the British Hospitals Association that the bureau of information could be considered to rest upon a firm foundation. This was provided in 1927, and the Central Bureau of Hospital Information now carries out its work on the authority of the hospitals themselves. This is, of course, a most important point, for in order to be successful it is essential that a centre should enjoy the confidence and the goodwill of the units that surround it. In addition to the publication of its annual report, the Bureau undertakes inquiries on the request of individual hospitals. It depends on the importance of the subject whether an inquiry results in a memorandum issued to all hospitals or is confined to a smaller number. The work of the Bureau is growing each month, and there will shortly be attached to it a hospital library where books and plans may be consulted. In short, the Bureau aims at becoming the intelligence department of the whole hospital system of Great Britain. To this end it is anxious to secure the goodwill and help of all foreign and international associations concerned

with hospital administration. We trust that the publicity accorded to its efforts in an international contemporary will achieve this result, for the story of the Bureau is fully told in the last issue of the *World's Health* by Mr. R. H. P. Orde, hon. secretary of the British Hospitals Association.

Annotations.

"Ne quid nimis."

AN UNSOLVED PROBLEM.

AT five years of age one-quarter of the children entering school are in need of medical attention according to the Chief Medical Officer of the Board of Education, who devotes several pages of his annual report [1] to what he calls the problem of the nurture and upbringing of the pre-school child. This problem, we are told, remains unsolved in spite of the 2776 infant welfare centres and an army of health visitors. The Maternity and Child Welfare Act of 1918 has done much for the child under one year, but the arrangements are almost wholly undeveloped for those aged 2 to 5, or what is known as the pre-school group. The result of the lack of provision for this group is to burden the school medical service financially and administratively with the physical and mental defects and impairment of an earlier age, to put the clock back for all the benefit won in the infant welfare centres, and to prejudice both the health and the education of the children as a whole. At present in England and Wales there are 2,000,000 children in this group. A large number, some 165,000, are in attendance at elementary schools where special provision of a limited character may or may not be made for them. Twenty-eight nursery schools are in existence accommodating about 1600 children, and there are 98 day nurseries which admit children from one month upwards. Altogether the special provision for these 2,000,000 children is almost negligible. What is needed now, and urgently needed, is the application of some approved method, an application which can only be effective if it is general or even universal. "If," says Sir George Newman, "we give the child up to five at least as good a chance of physical health as the school child obtains, the result will be sure." And he goes on to say: "It is as certain as the law of cause and effect that whenever and wherever we safeguard early childhood—by wise mothering, by good home conditions, by appropriate child nursing, by child welfare centres, by nursery schools—then and there we get improved physical conditions in childhood."

Wise mothering we are doing our best to obtain through maternity and child welfare services which are also responsible for infant welfare centres. Home conditions are being improved slowly but surely by housing and town-planning schemes. Child nursing has been demonstrated by Dame Janet Campbell in her recent report on infantile mortality to be the next important step in the child welfare campaign, only the nursery school lags behind waiting for more forceful encouragement from headquarters. Undoubtedly the extension of nursery school provision will do much to solve the problem of the care of the pre-school child. The nursery school is an evolutionary advance on the day nursery, whose original function of "minding" the children of the mother who went out to work has settled into two divisions: the care of the infant from 1 month and the care of older children from 2 onwards. It is now found that although the child under 2 can be adequately cared for in a day nursery, the child of 2 or over requires more than nursing or "minding." It is out of this idea that the nursery school has evolved. Its function is concentrated on the general nurture of the child physically and mentally from the age of 2 upwards, guiding natural instincts into correct habits and associations, encouraging efforts at reasoning, discrimination, and coördination—in fact, helping the child along the path of self-education and of independence by means of careful and skilled guidance at the hands of teachers specially trained for the work.

Such a system of hygienic and educational care for the pre-school child is naturally simpler to devise for an urban than for a rural area as is indicated in the report, but now that educational provision for rural children from 11 upwards is to be centralised in special areas it ought to be possible to organise in villages and small towns what might be called health and education centres to include the infant welfare centre, the nursery, and the primary school for children up to 11 years of age. As far back as 1908 a consultative committee of the Board of Education issued a report in which they arrived at the conclusion that the best place for children whose home conditions were unsatisfactory was the nursery school. Referring to this report Sir George Newman says: "In our own day we have at least comprehended the problem." Alas, it is a far cry now to 1908, and very many, indeed millions of 5-year-old children, healthy and diseased, have passed the portals of the elementary schools since then. The problem remains unsolved. It is still, where 2,000,000 children are concerned, one of the most important and urgent of public medical problems. We understand that 15 new nursery schools have been sanctioned, which brings the number up to 43. Forty-three schools, each accommodating 100–200 children, is but a drop in the ocean.

[1] H.M. Stationery Office. 1s. See also THE LANCET, Nov. 30th, p. 1151.

A SURVEY OF EPIDEMIC ENCEPHALITIS.

THE Commission organised and financed by Dr. William John Matheson of New York for the study of epidemic encephalitis has issued the first instalment of its report.[1] The Commission has considered the first essential to be a complete survey of the whole subject as it is known to-day. Such a survey of a disease, which though recent in appearance has become world-wide in its spread, is in itself no light undertaking, and it is evident that the Commission has set about its task with breadth of outlook and a characteristic thoroughness. Dr. Josephine B. Neal, in addition to obtaining all the information available from contemporary literature, has made an extended tour of this country and of those parts of Europe in which the earlier outbreaks of the disease were observed, interviewing personally those who have had large experience of the disease. The general summary of ætiology presents in clear and concise language the various stages through which the pathological investigations of different schools have passed during these 10 years. Complete success, it is evident, has not yet been achieved, but it must not be forgotten that during the last few years there has been an increasing difficulty in obtaining material for investigation from acute cases.

The long chapter on epidemiology, with its vast amount of statistical information, will, we think, prove to be the most useful section of the survey. It comes as rather a surprise to find that the total number of cases known to have occurred in England and Wales exceeds those known to have occurred in any other country in the world by a very large margin of 5000. The feeling cannot be repressed that this may be the result of notification rather than of incidence. The résumé of the various methods of treatment tried in different countries at different times reveals the meagre therapeutic importance of what has yet been achieved and gives point to the intention of the Commission to study for itself the treatment of 400 patients over a period of two years

[1] Epidemic Encephalitis: Ætiology, Epidemiology, Treatment. Report of a Survey by the Matheson Commission. New York: Columbia University Press. 1929. $3.00.

with adequate controls. The bibliography contains something like 5000 references—more than one paper per day for 10 years—an output which is the measure of the interest which the disease has excited wherever it has appeared. For collecting and codifying this information in such a pleasant and convenient format the English-speaking world owes a debt to the Matheson Commission.

OVARIAN GRAFTS.

THE study of organ transplantation has opened up a wide field of surgical research, but the results so far obtained have been disappointing from a therapeutic point of view. For some considerable time now attempts have been made to transplant the sex glands, especially the ovaries, for there are a number of clinical conditions in which this form of treatment would appear to be indicated. Opinion is more or less unanimous that heterografting, transplantation from one individual to another of a different species, is a failure. G. Schoene, who published a monograph on this question in 1912, concluded that this was to some extent due to too great divergencies in the metabolism of the two species. No real advance has been made in recent years, and it may be concluded that heterotransplantation has not justified its use in human surgery. The therapeutic future of transplantation so far as the ovary is concerned would seem to lie in the homograft—that is, transplantation from one individual to another of the same species. Up to the present, however, experiments in animals have been attended with greater success than those in human beings. I. Kross[1] in 1925 performed transplantation of immature rat ovaries into sexually mature castrated rats, observing the results for periods up to 9½ months. These grafts survived in the castrated animals far longer than in non-castrated controls, and Kross attributed his success to the use of immature ovaries in which the potentialities of growth were high. In the human subject homotransplantation has been carried out in several series of cases, notably those reported by Lesnoi, Magnani, Perezzi, Schultze, and Schreiner,[2] but with varying results. V. Pettinari, in a recent thesis (Paris 1928), reviewed the present position and in addition reported results of a number of grafts on his own cases. In his opinion, only occasional results can be expected from homografts, though he thinks that the method is worthy of a trial in certain cases of infantilism with hypoplasia of the genitalia and other cases of this kind in which ordinary therapeutic measures have failed. He lays great stress on the individuals being of the same blood grouping and in endocrine equilibrium. The operation may apparently be carried out without much surgical risk, but its results are not very encouraging. With regard to auto-transplantation—that is, removal of the ovary to some other part of the body of the same individual—there is almost general agreement as to its field of usefulness in young women of sexual maturity in whom adnexal disease has necessitated bilateral oöphorectomy. The symptoms of the artificial climacteric can thereby be prevented or delayed, and, if the uterus is retained, menstruation generally becomes re-established and continues regularly for a few years. A large number of successfully treated cases have been described by Unterberger, Cramer, Blair Bell, Sippel,[3] and, recently, by C. C. Norris and C. A. Behney.[4] The latter consider that the life of the auto-transplanted ovary is probably not more than two or three years and in this they are in agreement with the majority. In their group of cases most of the grafts, which were made into the rectus muscle, took and the operation was practically without mortality. The grafts occasionally became tender for a day or two each month, but rarely gave rise to serious trouble.

[1] Amer. Jour. Obst. and Gyn., 1925, ix., 628.

[2] Lesnoi, S.: Russk. Klin., 1927, viii., 72; Magnani, L.: Riv. Ital. da Ginecol, 1927, vi., 33; Perezzi, P.: Atti d.v. Accad. d. Fis. in Siena, 1927, ii., 339; Schultze, G. K. F.: Zentralbl. f. Gynäk., 1928, lii., 29; Schreiner, R.: Deutsch. med. Wchnschr., 1927, liii., 2084.

[3] Unterberger, F.: Arch. f. Gynäk., 1918, cx., 173; Cramer, H.: Deutsche med. Wchnschr., 1919, xlv., 475; Bell, W. Blair: Brit. Med. Jour., 1918, i., 619; Sippel, P.: Arch. f. Gynäk., 1923, cxviii., 445.

[4] Surg., Gyn., and Obst., November, 1929, p. 642.

THE TREATMENT OF SYPHILIS.

MANY discussions on the treatment of syphilis have taken place in the United States recently and it is clear that the questions which still exercise the minds of practitioners are (1) what constitutes a complete cure, and (2) what methods are available for detecting latent disease in the absence of definite clinical signs. Unfortunately for the solution of these problems, as W. E. Coutts[1] has recently pointed out our evaluation of remedies is based mainly on the results obtained in experimental rabbit syphilis, on the rapidity of healing of a lesion, and on favourable changes in blood reactions and clinical symptoms, whereas the final test of efficiency of any anti-syphilitic agent must be gauged by the ultimate fate of patients—years after the cessation of treatment—as well as upon records furnished by post-mortem examination. It is regrettable, in view of this undoubted fact, that the death certificate of a syphilitic person seldom gives any indication of his infection. Dr. Coutts anticipates no dramatic advance in syphilotherapy until the life-cycle of the infecting agent has been elucidated, until problems such as the existence of spirochætes with particular dermotropic or neurotropic affinities have definitely been solved, or until laboratory tests have become even more sensitive and reliable. He may be too pessimistic but it must be admitted that at present no assurance of cure can be given merely on a series of negative serological tests. In fact the exact position of the Wassermann reaction and the various precipitation tests as an indication of cure is still a constant source of argument between the clinician and the laboratory worker. The reliability of the Wassermann test has been keenly criticised, but the original test and its modifications have, nevertheless, withstood attack for 25 years, and the Wassermann reaction remains to-day one of the most valuable laboratory procedures known to medicine. Those of its modifications which have been recommended in the green books published by the Medical Research Council have passed a severe specificity trial organised by the League of Nations in serological laboratories of repute. As between the Wassermann reaction and the newer precipitation tests, Kolmer,[2] who has had an extensive experience of both the clinical and the serological aspects of syphilis, holds that where possible a complement-fixation test as well as a precipitation test should be done; when one test only is feasible, he prefers a complement-fixation test. Believing, as he does, that the strength of a laboratory serological test is proportional to the degree of spirochætal activity, it follows that in his view clinical symptoms depend more on where the activity is occurring than on the amount of activity. According to this theory a few organisms may produce symptoms of syphilis with insufficient reaction for a positive serological test or, on the other hand, a number of organisms large enough to determine a pronounced positive reaction may cause no immediate symptoms. Kolmer urges the clinician not to ignore positive reactions when clinical signs are absent, but rather to suspect negative ones where such signs are present. With regard to negative reactions, Belding[3] expresses the generally accepted opinion that the syphilitic antibody shows no intensification as the result of a provocative injection of an arsenical preparation. From the aspect of treatment it is fortunate that positive serum reactions usually precede clinical signs of relapsing syphilis; hence the value of periodic

[1] Amer. Jour. of Syphilis, 1929, xiii., 489.

[2] Jour. Amer. Med. Assoc., 1929, xciii., 1429.

[3] Amer. Jour. of Syphilis, 1929, xiii., 489.

tests, for they give a warning that further treatment should be given before any symptoms or signs of tissue destruction, which may be irreparable, have appeared. Hazen[4] and others insist, moreover, that no clinical examination is complete without an observation of the heart and great vessels with the fluorescent screen. There is evidence that involvement of the nervous system occurs early in the disease—a clear indication that the cerebro-spinal fluid should be examined as a routine at the end of any course of treatment and again on the occurrence of the slightest clinical sign. The protean nature of syphilitic lesions indicates that the manifestations probably depend more on the soil on which the infection falls than on variations in virulence or species of the invading spirochæte. Of recent years there has been a tendency to standardise the treatment of syphilis to the neglect of consideration of the individual. So much has been written in medical literature of the merits of this or that particular remedy, of the superiority of arsenic to bismuth and vice versa, that doctors tend to adopt one preparation for routine use, forgetting that one agent may succeed where another fails. The effective treatment of syphilis requires both experience and resource as well as a determination to neglect no remedy which may be the most suitable for a particular patient. A selection from among modern chemotherapeutic preparations has made it possible not only to disperse with ease the obvious signs of primary and secondary syphilis, but also in most patients to give a good prognosis as regards complete cure. The same prospect cannot be held out in the tertiary affections, but even here progress has been made on unexpected lines. The control afforded by laboratory tests in syphilis has already raised the standard of effective treatment far higher than it is in certain other chronic diseases. It rests now with the clinician to keep a close watch on the future progress of cases with anomalous Wassermann reactions and to trace the early records of those whose death from cardiovascular or other forms of late syphilis testifies to defects in the scheme of treatment to which they were subjected.

THE EVACUATION OF WOUNDED BY AIR.

THE theoretical considerations involved in evacuating sick and wounded by aeroplane in war-time have recently been considered both in this country and in the United States. Practical experience has been gradually accumulating since the war, and has been summarised by General Fritz Bauer, of the Swedish Army Medical Service.[5] He says that there were no organised attempts to use aeroplanes for military medical purposes in the late war, but that by 1925 the French in Morocco and Syria had actually evacuated nearly 3000 cases by air. In October, 1921, six aeroplanes carried 18 seriously wounded men in 35 minutes a distance which by ordinary transport would have taken three days. In Iraq we followed suit, and after various trials of unsatisfactory types of aeroplanes in March, 1924, the Vermont Victoria, which carries 24 sitting or 14 lying, was adopted as a standard type, and air evacuation came to be the normal method employed. It may be said that in countries such as Morocco and Iraq this method has not proved more dangerous or costly than other modern transport, and it has an excellent effect on morale, because it saves lives and reduces suffering. The great development of flying in the United States has led Captain R. K. Simpson[6] to explore the possibilities of the organisation of air transport for the wounded on a really big scale on the outbreak of war. He states that more than a hundred firms are at present engaged on aeroplane manufacture, and points out that while civilian aeroplanes are not suitable for fighting purposes, and civilian pilots would need a considerable period of training to enable them to take the field in war, both aeroplanes and pilots would be immediately available for ambulance purposes. They would operate entirely behind the lines, and so would not run risks from enemy action, and their work would only be interfered with by dense fog. The actual types and equipment of aeroplanes most suitable for ambulance work have lately been discussed by Group-Captain H. V. Wells.[7] Machines of the small 2-seater type have the advantage of needing only a small landing and taking-off space, but they are mostly incapable of taking a stretcher case owing to the cross bracing wires of the fuselage. A hoop system, however, will dispense with cross wires, and we have such a machine in the Fairey III. F. Wells suggests that evacuation by air finds its greatest value in tropical wars.

[4] Amer. Jour. of Syphilis, 1929, xiii., 489.

[5] Jour. of Roy. Army Med. Corps, February, 1929. Translated from the Rev. Inter. de la Croix Rouge.

[6] Military Surgeon, January, 1929.

DIET AND STERILITY.

FERTILITY, both in the animal and vegetable kingdoms, is naturally associated in our minds with an abundance of good nourishment. Among mankind fasting has been practised from time immemorial as an aid to chaste living. The relation between fertility and abundance of food is not, however, by any means a simple problem, and we think at once of the pronounced tendency of our own poorer classes to produce large families in spite of their having a decidedly limited amount of money to spend on food. There is a considerable body of evidence pointing to some relation between the state of nutrition and the degree of fertility. Dr. Donald Macomber,[8] who has made a special point of investigating possible dietetic errors as the cause of sterility in women, has recently collected some of this evidence. Animal experiments have shown clearly that the quality of food eaten may exert a profound influence on fertility, and in the rat a specific accessory factor named vitamin E has been proved essential for normal reproduction. It is possible also that the quantity of food eaten may be of importance. An experiment in undernutrition carried out in the United States during the Great War may have some bearing on the problem. A squad of 12 men belonging to a training school were submitted for a period of four months to a general dietary restriction so that they lost 12 per cent. of their weight. It was noted during the course of the experiment that without exception they ceased to manifest the usual involuntary phenomena of sexual vigour, although they felt fit and were able to carry out all their regular work and exercise. It has been reported frequently that during times of famine the menstruation of women may cease. It therefore seems possible that at the present time, when fashion decrees that women shall be perpetually undernourished, there may be cases of sterility directly attributable to the state of malnutrition. An analysis of the diets of 206 women seeking advice on account of sterility showed that their consumption of protein was 10 per cent., and of total energy value 18 per cent. below the normal standard. These figures by themselves prove nothing, but at least they suggest the desirability of including an inquiry into the dietary habits of those who are seeking a remedy for sterility. There is no definite evidence at present that deficiency of vitamin E determines the occurrence of sterility in women, although it is worthy of note that the diets of the 206 women mentioned above were in many cases found to be deficient in fat-soluble vitamins. Forty of these women became pregnant after receiving advice on how to improve their state of nutrition, and, though it cannot be assumed that the result was always due to changes in dietary habits alone, the treatment of sterility in the future may reasonably include attention to both the quantity and quality of the food eaten.

[7] Jour. of R.A.M.C., October, 1929.

[8] Jour. Amer. Med. Assoc., 1929, xciii., 1213.

THE FATE OF PREMATURE INFANTS.

THERE is still much uncertainty about the subsequent physical and mental development of the premature or underweight infant. It is agreed that mortality is high in the first few years of life, but views on the health of those who survive are so conflicting that they scarcely help in the prognosis of actual cases. Sigurd Ranke[1] has lately studied the fate of a series of infants weighing less than 2500 g. at birth, and compares his results with those of other investigators including C. Looft [2] and A. Yllpö, who adopted the same birth-weight as a standard of prematurity. Of Ranke's series of 190 children seen at a children's hospital in Malmö from 1915 to 1924, 35 could not be traced, but as many as 82 (53 per cent.) were known to have died. This percentage is almost identical with that found by Yllpö. Further analysis of these figures showed that 78 of the 82 died in the first year, and that after this age the mortality was not greater than that of full-term infants. Of the 73 children who could be traced and re-examined, Ranke found only four (5·5 per cent. of the survivors) who were classed as mentally defective. This gives a figure of 3·4 per cent. of traced cases surviving the first six months, compared with 7·4 per cent. found by Yllpö. Besides the four aments there were nine children in Ranke's series who were somewhat backward. The incidence of mental impairment is considerably lower than that found by some other authors he quotes. The majority of the premature children traced by Looft after 10 years were found to be retarded, while L. Salomonson records a mental deficiency rate of 21 per cent. On the other hand, H. Finkelstein and others found no cases of amentia. A striking difference in the series of Looft and of Ranke lies in the incidence of Little's disease, which was 18 per cent. in the former and nil in the latter. Ranke gives interesting observations on the subsequent measurements of these children; their weights tended to be at or below the average, and the heights at or above the average, corresponding with the observer's impression of "long, lean and slim" children. The principal fact which emerges from these important investigations is that prematurity, though often associated with amentia, is not an actual cause of it. The causes of prematurity itself are obscure and probably numerous, and the subsequent characteristics of the infant will be conditioned by these varying causes rather than by the state of maturity reached at birth.

A NEW KIND OF HISTORY.

"Some day a man will write a new kind of history. Its keynote will be the shaping of human destiny by disease, and, let us hope, the guidance of this destiny by virtue of the control of disease."

WITH these remarks Dr. Allen Krause opened his Hermann M. Biggs Memorial Lecture for 1927; the materials for such a task are obviously considerable, and Dr. Krause himself made no little use of them in the lecture which has now been reprinted as a booklet.[3] Using the social history of the United States as his milieu he sketches the long struggle which has gone on to obtain control of the tuberculosis problem since the early days of the public health movement. Phthisis was uncommon in America at the end of the eighteenth century, but by 1828 it was increasing "with fearful strides." Brought in by the early settlers, Dr. Krause thinks that the disease was quite likely held almost under cover as long as a sparse agricultural economy existed. Even in the developing villages and towns phthisis was probably uncommon, but growing cities began to bring it into notice, and by the time the manufacturing side of the nation had made its presence felt at the beginning of the nineteenth century, tuberculosis had become a national menace. Dr. Krause has some astonishing facts to relate of the industrial revolution in America, but although the scene is laid on the other side of the Atlantic the outlines of the picture seem to be strikingly similar to our own; James Truslow Adams and Josiah Curtis tell much the same tale as Charles Kingsley and Arnold Toynbee. Ill-ventilated factories, crowded dwellings, all the insanitary conditions which were the concomitants of the early days of industrialisation, helped to create a high tuberculosis death-rate. It was an age of enormous industrial expansion and an accelerated impulse towards urbanisation, and according to Dr. Krause, "by 1850 it was plain that mid-century industry was the handmaid of tuberculosis." He then goes on to show how public health machinery is triumphing, slowly but surely. In the early days of the industrial revolution, tuberculosis was an urban malady and an urban problem; the factory system was in process of evolution, and living conditions did not keep pace with them. Now the position is changed. The towns are out-stripping the country and if civic sanitation continues to progress at the present rate, tuberculosis is likely to become a rural rather than an urban problem.

[1] Acta Pædiat., 1929, ix., 46.
[2] See THE LANCET, 1928, i., 244.
[3] Tuberculosis and Public Health. By Allen K. Krause. Baltimore. 1928. Pp. 54. Reprint from the American Review of Tuberculosis, 1928, xviii., 271–322.

THE INTRADERMAL TEST FOR HYDATID DISEASE.

EIGHTEEN years have elapsed since Casoni described his intradermal test for hydatid disease, and in the intervening period various modifications in its technique and interpretation have been made. The most important development has been an appreciation that the reaction manifests an immediate as well as a delayed phase. Casoni originally injected 0·5 c.cm. of hydatid fluid intradermally and noted the marked erythema of the skin, the infiltration and the puffy swelling of the subcutaneous tissues which appeared some hours later in hydatid cases. This phase is now known as the delayed reaction. Magath in 1921, using a technique similar to the Pirquet test, observed rapid wheal formation and cutaneous erythema following the application of hydatid fluid to the scratched skin in three people harbouring hydatid cysts, and in the following year Ithurrat and Calcagno reported a similar type of response occurring within a few minutes of the intradermal injection of a similar antigen. Sixty-three of their series of 65 patients suffering from hydatid gave an immediate response, and only 4 out of 127 cases subjected to the test failed to correspond with the operative findings. Later in Australia Kellaway, Dew, and Williams studied both phases of the reaction at the Walter and Eliza Hall Research Institute and came to regard the immediate reaction as of great diagnostic value. Immediate wheal formation, however, was noted in the absence of demonstrable hydatid infestation in cases showing jaundice, urticaria, and generalised skin diseases. This year two additional papers have originated from the same Institute, the first being a critical analysis by K. D. Fairley[1] of the results of the test obtained over a period of five years. Exacting criteria of diagnosis were enforced, all doubtful cases being rejected from the series. In hydatid patients tested before their first operation 82·9 per cent. showed the immediate reaction and 40·4 per cent. the delayed response. The anatomical location of the cyst was found to exert little or no effect, but its pathological condition definitely influenced the reaction, since 92·6 per cent. of cases with ruptured or suppurating cysts yielded positive results compared with 77 per cent. in which these complications were absent. On the other hand, 35 out of 87 cases (40·2 per cent.) which gave an immediate wheal failed to show any evidence of hydatids on detailed investigation, and the justifiable conclusion was reached that no surgeon

[1] Fairley, K. D.: Med. Jour. of Australia, 1929, i., 472.

should operate solely on the basis of an immediate reaction. No evidence of hydatid was found in 96·8 per cent. of hospital patients in whom wheal formation was absent and a negative reaction came to be regarded as highly important, though not infallible, evidence in excluding echinococcosis. In Fairley's opinion this constituted the chief clinical value of the test. During the post-operative period immediate reactions were recorded in 90·2 per cent. of patients. Recent rupture of the cyst with consequent temporary desensitisation was sometimes found to be responsible for negative findings. When no other cysts were present the reaction often persisted for years, but its continued absence in any patient showing a positive result before operation was regarded as evidence of cure.

The second paper, written conjointly by K. D. Fairley, N. H. Fairley, and F. E. Williams[2] was the outcome of an inquiry into the causation of immediate reactions in patients showing no other evidence of echinococcosis. More exacting standards and controls for the test are recommended with the object of diminishing or abolishing the growing list of pseudo-reactions reported by numerous observers. Accurate measurements of the immediate wheal and of the area of infiltration in the delayed reaction are shown to be essential. It is pointed out that in the past the results have been classified as "positive" or "negative" largely on the impressions of what constituted a reaction or a failure to react, and as these conceptions varied with individual observers no accurate comparison of results is possible. Guisti and Hugg first reported the presence of pharmacologically active substances in samples of hydatid fluid, and it is now shown that such fluids may occasionally give rise to either direct or indirect types of reaction in normal individuals. In consequence it is urged that fluids be tested on a series of normal individuals in order to exclude pharmacologically active substances as well as standardised for antigenic potency on those harbouring hydatid cysts.

To perform the test 0·25 c.cm. of standardised hydatid fluid is injected into the dermal layer of the skin covering the outer surface of the arm, a similar injection of normal saline solution (0·9 per cent.) serving as a control a few centimetres away. Care is taken to ascertain that this area has not been previously tested. If so, another site must be selected since local sensitisation was proved to result in a normal person from the repeated injection of hydatid fluid into an area of skin ringed with silver nitrate. In recording results wheals the size of a shilling (diameter 2·4 cm.) are regarded as positive, those not exceeding sixpence (2·0 cm.) as negative, and those of intermediary dimensions as of doubtful significance. In the latter case the test is repeated. Outrunners resembling pseudopodia are taken into account in making measurements. When the control injection of saline produces a wheal exceeding 2·0 cm. in diameter, the patient is rejected as an unsuitable subject for the test, and the same applies if there is a triple response to the stroke test (Lewis). A wheal even of the dimensions mentioned, however, was not found to be pathognomonic of echinococcosis. Certain other fallacies were shown to exist, and in any case presenting a positive reaction further investigations are advised. Filtered sheep serum (0·25 c.cm.) is injected intradermally in order to exclude sensitiveness to sheep serum proteins, for the data presented clearly demonstrate that hydatid fluid from ovine sources contains sufficient host protein to produce positive reactions in patients not infested with hydatids, but sensitive to sheep serum. Finally, the group reactions attending concomitant helminthic infestation receive consideration. Both immediate and delayed reactions were observed in non-hydatid cases harbouring other tapeworms such as *Tænia saginata*, and for this reason a search for intestinal helminths may be indicated. In nematode infestations less conclusive evidence of group reaction was presented.

The new facts elicited by these important investigations clearly indicate that the intradermal test affords no short cut to diagnosis. For many years it has been appreciated that a specific antigen-antibody reaction underlies the various biological tests for echinococcosis. In the intradermal test, unfortunately, an additional vascular mechanism is involved. Increased permeability of the capillaries with fluid transudate underlies wheal formation, and according to Lewis this in turn is dependent on the liberation of "H substance" during the intracellular union of antigen and antibody. Be this as it may, the vascular factor introduces its own peculiar fallacies, the elimination of which calls for both skill and judgment on the part of the practitioner employing the test. Serological reactions, like the complement-fixation and precipitin tests, are conducted in vitro and do not suffer these limitations; of necessity they must remain the most reliable of the biological aids to diagnosis in those countries where hydatid is endemic.

[2] Fairley, K. D., Fairley, N. H., and Williams, F. E.: Ibid., 1929, ii., 320.

CLEAN AIR.

THE National Smoke Abatement Society has produced a new journal called *Clean Air*. The first issue, dated Autumn, 1929, is sent forth with good wishes from many eminent people, and contains a number of articles on the purification of the atmosphere in our cities. Smoke was long regarded as the inevitable accompaniment of industry, and the possibility of freeing the air from it was at first the fad of a few. The idea has, however, taken firm hold and may very soon become the normal expectation of us all. It has been demonstrated over and over again in industry that the most hygienic method is the most economical, and cleansing of the atmosphere obeys this law, for smoke is simply wasted fuel. There are three principal lines along which to proceed with smoke prevention: gas, electricity, and smokeless fuels like anthracite. *Clean Air* contains an article on the use and development of gas in industry, giving examples of the innumerable directions in which gas can be economically used in various trades. The director of a research institute in America has estimated that the potential market for industrial gas is at present only 2 per cent. saturated. Another article deals with the uses and development of electricity in industry and stresses its very wide range of application, its precise and positive control, the exceptional uniformity of temperature which it yields, and the reduction to a minimum of labour requirements. It must be admitted, however, that the private consumer is the chief offender against the purity of the atmosphere: regulations have already gone far towards abolishing the cloud of smoke that used to belch forth from factory chimneys, but every small house contributes its little wisp to the fog that lies over London. The annual review of domestic heating given in the new journal suggests that those who long for the comfortable sight of an open fire burning in the grate should have their wish—more or less—by burning either anthracite or high quality gas coke in their grates. The low-temperature carbonisation fuels have saved the open grate from the condemnation with which it was threatened by the reformer, and though it must be admitted that such fuel still remains rather more expensive than coal, it reduces dirt and labour in the house as well as smoke outside it. Much experimental work requires to be done on these combustibles, and there is also scope for improving the general temperature of British houses by central heating or by insulation, so that the amount of fuel burned in the open grate is reduced. There is a very great deal to be said for the abolition of smoke, and practically nothing except prejudice or sentiment (and the price of smokeless fuels for those who want the open grate) to be said against it. We hope that the new journal will receive the support for which it

asks and will be able to carry the campaign for clean air into the homes and factories of the whole country.

WE regret to announce the death of Sir Sidney Alexander on Dec. 9th, at the age of 66. From 1910 to 1920 he was Mayor of Faversham, where he practised for many years before taking up consulting work in London.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Vice-Admiral Arthur Gaskell, C.B., O.B.E., Medical Director of the Royal Navy following precedent, has accepted an extension of his appointment for one year from June, 1930, when he will have completed the ordinary term of three years, having succeeded Sir Joseph Chambers, K.C.B., C.M.G., in 1927. Surg. Vice-Admiral Gaskell, who is 58 years of age, joined the Navy in 1893. He was made C.B. for his services with the Royal Naval Division at the Dardanelles where he was A.D.M.S. Afterwards he was in charge of the hospital ship *Soudan* and later head of the R.N. Hospital at Simonstown.

Surg. Comdrs. A. R. Fisher and T. R. L. Jones are placed on the Retd. List at their own request, with the rank of Surg. Capt.

Surg. Lt.-Comdr. F. G. Hunt to be Surg. Comdr.

The following appointments are notified: Surg. Comdrs. E. Moxon-Browne to *Malaya*; G. L. Ritchie to *Greenwich*; and C. M. R. Thatcher to *London*. Surg.-Lts. J. J. Mason to *Egmont*, and J. W. L. Crosfill to *Concord*.

ROYAL ARMY MEDICAL CORPS.

Lt. H. McNeill relinquishes his tempy. commn.

ARMY DENTAL CORPS.

Maj. F. W. Shilton retires on account of ill-health receiving a gratuity.

TERRITORIAL ARMY.

Maj. A. P. Draper, R.A.M.C., vacates the appt. of Divl. Adjt., 52nd (Lowland) Div., T.A.

Lt. G. Williams to be Capt.

Supernumerary for service with O.T.C.—Lt. G. P. Crowden to be Capt.

TERRITORIAL ARMY RESERVE OF OFFICERS.

Maj. W. T. Gardiner, from Active List, to be Maj.

Capt. W. G. Saunders, from Active List, to be Capt.

Lt. R. L. Turner, from Active List, to be Lt.

INDIAN MEDICAL SERVICE.

Lt. D. P. Lambert to be Capt.

The undermentioned officers relinquish their temp. commns.: Capt. Rama Shanker Varma, and Lts. Bonbehari Bhattacharji and Mazhar Hussain Shah.

COLONIAL MEDICAL SERVICES.

The following new appointments have been made by the Secretary of State for the Colonies:—Dr. H. G. Harvey, Medical Superintendent, King Edward VII. Memorial Hospital, Bermuda; Dr. W. B. Sutherland, Medical Officer, Malayan Medical Service, Federated Malay States; Dr. E. Holmes, Medical Officer, Iraq; Major J. W. C. Stubbs, Inspector of Medical Services, Iraq Army; Captain G. A. C. Gordon, Medical Officer of Health, Nigeria; Dr. H. G. Pritchard, Medical Officer, Nyasaland; and Dr. G. Q. Chance, Medical Officer, Malayan Medical Service, Straits Settlements. Dr. G. R. Baxter has been appointed Medical Officer of Health, and Dr. W. R. Little, Medical Officer, on the West African Medical Staff.

ROYAL SEA BATHING HOSPITAL, MARGATE.—The 138th annual report of this hospital states that the average daily number of occupied beds was 301, and the average cost per occupied bed was £127 5*s.* 11*d.*, as against £134 13*s.* 7*d.* in 1927. Portions of the building which are built of red brick are being so much affected by the salt-laden atmosphere that the bricks are crumbling and in some cases completely decayed. Heavy expenditure will be needed to check the degeneration.

The Clinical Interpretation of Aids to Diagnosis.

A Series of Special Articles contributed by Invitation.

LVI.

INTERPRETATION OF RADIOGRAMS OF THE ALIMENTARY TRACT.

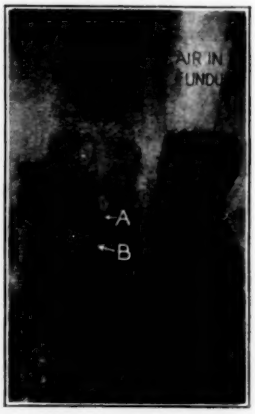
PART III.*—THE DUODENUM.

RADIOLOGISTS talk of the first part of the duodenum as "the cap." It looks and behaves quite differently from the rest of the duodenum. Functionally, apparently, it is different, for it fills up with opaque food into a triangular, cocked-hat shaped shadow, poised on top of the pylorus, usually pointing towards the gall-bladder; whereas the food passes rapidly through the second and third parts and is divided up by the muscular action of its walls, so that no definitely outlined shadow is seen (Fig. 17). In stout patients the cap is sometimes turned backwards and lies almost directly behind the stomach. This disposition greatly increases the difficulties of palpation and also of obtaining films, for it necessitates an oblique or even a transverse illumination.

Duodenal Ulcer.

The duodenal cap usually fills satisfactorily, at any rate if we are patient and wait. But if there is irritation it is sometimes extremely difficult to get the cap outlined. With patience and the assistance of manipulation it is usually possible to hold some opaque food in the cap and to manipulate it sufficiently to demonstrate that the outline is not persistently deformed. Ulceration of the duodenum is almost confined to the first part (90 per cent. or more), and whenever there is ulceration there is *persistent* deformity of the cap shadow (Figs. 18 and 19). This deformity is largely due to spasm, and the resultant picture varies widely according to the site of the ulcer and the degree of spasm. Every attempt should be made to demonstrate the actual crater of the ulcer. This is not by any means always possible; yet, apart from the demonstration of the crater, I do not think that we are justified in making an absolutely positive diagnosis. With a deformity that is persistently the same, the probabilities are very high that it is due to the presence of an ulcer, but it might be caused by adhesions, and, personally, I reserve the definite diagnosis for the cases in which the ulcer crater is detected. Every observation on the duodenum and also on the stomach, whether positive or negative,

FIG. 17.



Normal duodenal cap (A). The stomach is of the long type and the cap points vertically. Its upper limit is on the level of the crest of the ilium—i.e., the duodenal attachments have allowed it to descend to compensate for the "gastroptosis." Note the large quantity of air in the stomach. Probably a nervous type of female subject who is inclined to air-swallowing and consequent eructation. Note also the food passing through the second and third parts of the duodenum. In this and subsequent figures B = pylorus.

* Parts I. and II., on the Œsophagus and the Stomach respectively, appeared in THE LANCET of Nov. 30th and Dec. 7th. The Intestines will be dealt with in subsequent issues.

should be confirmed when the patient comes up for examination on the second day.

Beyond the duodenal cap the opaque food is quickly broken up into fine division. Sometimes there is accumulation in the loop of the duodenum—duodenal ileus. This may or may not be pathological, due to some kinking or drag at the duodeno-jejunal flexure, or other cause of obstruction, but unless it is well marked it is wise to regard it as of no pathological significance. As often as not we do not find it when we re-examine, particularly if the circumstances are more normal than at the first examination. Rapid emptying of the stomach often gives rise to such an appearance. Certainly a slight degree of duodenal ileus may be disregarded as a guide to surgical interference.

FIG. 18.

Deformity of the duodenal cap—a typical type of deformity.

New growths of the duodenum are extremely rare—an interesting fact considering the extraordinary prevalence of ulceration. There is certainly no tendency of duodenal ulcer to become malignant. Whether the very similar peptic ulcer of the stomach is as liable to malignancy as was formerly supposed seems to be open to question. X ray observations are all against such a sequence except in very rare cases.

Diverticula.

Diverticula of the duodenum are comparatively common and they are liable to give rise to symptoms that are indistinguishable from those of duodenal ulcer. The pocket of the diverticulum, which is usually about the size of the end of a finger and arising about the junction of the first and second part, is more readily identified on the screen than on the X ray film. Diverticula may occur in other parts of the

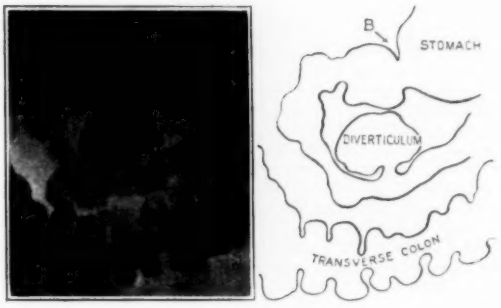
FIG. 19.

Deformity of the duodenum showing the pockets of two ulcers near the apex of the cap.

duodenum (Fig. 20) and also in the small intestine, but they are not so common and are probably less often associated with symptoms. A condition of the first and second part of the duodenum which may give rise to symptoms of duodenal ulcer and to appearances that are rather similar to those of a diverticulum is caused by a dropping over and twisting of the junction of the first and second parts, an appearance that is not readily appreciated on the screen and not always recognised as a possibility on the operating table.

Adhesions about the gall-bladder are common, and many of them give rise to deformities of the duodenum which are almost, if not quite, indistinguishable from those caused by ulcer. Palpation of

FIG. 20.



Large diverticulum of the third part of the duodenum—an unusual site. Patient recumbent and stomach only partially filled. Normally the food passes rapidly through the duodenum. In this instance the radiologist by his manipulation has dammed the third part and forced food out of the stomach in order to obtain this radiographic effect.

the food in the duodenum and the detection of undue fixation is the only way in which one can attempt to arrive at a reasonably accurate diagnosis.

A. E. BARCLAY, M.D. Camb.,
Lecturer in Radiology, University of Cambridge.

Special Articles.

SOME OBSERVATIONS ON SCANDINAVIAN SURGERY.

BY T. HOLMES SELLORS, B.M. OXF.,
O. H. HUNT TRAVELLING SCHOLAR, UNIVERSITY OF OXFORD; SURGICAL REGISTRAR, MIDDLESEX HOSPITAL.

II.

VASCULAR SURGERY.

Arterial Embolism.—The clinical and operative study of arterial embolism was greatly advanced by a paper from Prof. Einar Key, of Stockholm, in 1922. This year he has published a further report in which the results of 213 cases have been collected. This includes 17 cases of his own. The removal of emboli has become a standard surgical procedure, and the diagnosis is based on the general condition of the patient—i.e., possible existence of heart disease, &c.; and the site of the initial pain, lividity, and loss of pulse below this region give an accurate localisation of the embolus. The operation is usually performed almost exactly over the site, and the time factor is of great moment on account of thrombosis behind the embolus. The majority of these cases originate in heart lesions, but arterial disease may also play some part. The operation of embolectomy should be performed as soon as possible after diagnosis, so as to check the obliteration of collateral circulation by back-spread of thrombosis. Also there is the risk of malnutrition with subsequent ulceration and secondary thrombosis at the site of the embolus, which is most commonly at a bifurcation of two vessels.

The affected artery is exposed, pulsation is absent, and the rubber-like clot can be felt blocking the lumen. Soft clamps are applied beyond the limits of the clot and the intervening artery is incised. The clot is gently removed, and release of the clamps alternately will demonstrate freedom of the blood stream. Sutures of very fine vaseline silk are used to repair

the incision. There has been no record of stenosis or aneurysm which can be attributed to the sutures. The prognosis ultimately is not satisfactory in cases with an underlying heart lesion, though a very large number may be said to be cured as regards their embolism. The figures from Prof. Key's paper show that, if the operation is performed under ten hours, 51 per cent. of the cases give good results. Over ten hours a good result is only obtained in about 23 per cent. of the cases. The frequency of embolism is, roughly, the femoral, common iliac, popliteal, bifurcation of aorta, brachial and axillary arteries. On the whole, embolism in the arm gives the best results, since the collaterals are freer, and even if secondary thrombosis occurs, the interval of freedom resulting from operation may be sufficient to allow the establishment of an efficient circulation.

Results from aorta are, generally speaking, bad, whereas embolism of the leg arteries gives fairly good results under ten hours. Naturally the state of the vessel itself is a big factor in the prognosis, but age is not necessarily a contra-indication to the operation, which can, in the majority of cases, be performed under local anæsthesia.

Venous Thrombosis.—Thrombosis of the femoral and iliac veins as a post-operative complication is common in Scandinavia as compared with England. The reason of this is not clear, since all commonly recognised causes have been countered as far as possible. It is said that the incidence in the north of Sweden is not as great as in the south, where the type of individual is heavier in build. There is certainly a relative tendency to the thrombotic condition in big, fat people, who have been submitted to an incision in the anterior abdominal wall, but no amount of breathing exercises, massage, or movements of the lower limbs seems to have much effect in diminishing the frequency of this condition. Prof. Nyström, of Upsala, has made some preliminary observations on the blood-platelet count, and by daily estimation is frequently able to predict, but not prevent, the onset of thrombosis.

Pulmonary Embolectomy.—From the frequency of venous thrombosis it may be gathered that pulmonary embolism, too, is not rare. To meet this dramatic emergency a modification of Trendelenburg's original operation is being practised. To date 20 failures have been reported, as against seven or eight complete successes, but it is interesting to note that there had been no complete success reported up to 1924. The time factor between the actual embolism and removal of the clot imperatively demands emergency measures. The surgeon may not be at hand, and consequently, in the majority of Scandinavian clinics, the first and second assistants have been trained to perform the operation if occasion arises. Where possible, at the onset of an embolism, the patient is hurried to the operating theatre, where sterilised instruments are kept constantly in readiness. The operation itself is not started until it is absolutely certain that the heart will stop in one or two minutes, or has already stopped. Anæsthesia is unnecessary; a vertical incision over the second to fifth costal cartilages is made, and by division of the cartilages the pericardium and pleura are exposed. The pleura is pushed aside, and the upper part of the pericardium incised. A big clamp is passed through the transverse sinus around the aorta and pulmonary artery controlling these vessels, and the base of the pulmonary artery itself is then opened and endeavours are made to extract the clot. Sometimes the clot comes free with gentle application of forceps; at other times a sucker may have to be used. Adrenalin is injected into the base of the aorta so as to reach the coronary circulation, and the control clamp is freed while the incision in the pulmonary artery is held. If the heart starts beating the hole in the pulmonary artery is sutured, the tissues are anæsthetised, and the original incision repaired. I saw Prof. Nyström's second successful case two or three weeks after the operation, and she was apparently making a satisfactory recovery. It is certainly a field of surgery which has considerable possibilities, since the proportion of successes, even allowing for unreported failures, is very encouraging, the more so when it is realised that the cases were not operated on until the heart had ceased to beat. A paper containing details of the operation as well as a full and lucid account of arterial embolism has been published this year by Prof. Einar Key in *Ergebnisse der Chirurgie*, March 22nd, 1929.

RADIOLOGICAL CONGRESS.

LONDON, DEC. 4TH–6TH, 1929.

THE annual meeting of the British Institute of Radiology incorporated with the Rontgen Society was held in the Central Hall, Westminster, from Dec. 4th to 6th. In the course of the meeting the tenth Mackenzie Davidson Memorial Lecture was delivered by Prof. GOSTA FORSSELL, in charge of Radiumhemmet, Stockholm, on the Radiotherapy of Malignant Tumours in Sweden[1]; and the twelfth Silvanus Thompson Memorial Lecture by Prof. A. S. EDDINGTON, F.R.S., on X Rays in the Stars. A number of technical papers were read, among them one by Dr. FRANGCON ROBERTS, which appears in full on another page, and several discussions took place on debatable questions of the moment.

Dr. L. A. ROWDEN being in the chair, Dr. G. B. BATTEN opened a discussion on the

Requirements of Clinicians from Radiologists and Vice Versa.

He said that "radiologist" had come to mean a doctor who used X rays for diagnosis or treatment, while "radiographer" meant an unqualified person who used X rays. The requirements of clinicians from radiologists should be exactly the same as their requirements from all other specialists: such aid as would help them to diagnose and treat their patients in the best possible way. In many cases a team was necessary. The clinician most of all required really good films with a careful, well-considered report. The radiologist required from the clinician everything that any other specialist would require to help him to elucidate the problem for correct diagnosis. The clinician must take the radiologist into his confidence and state in what directions help was needed. There were very rare cases where a patient should be sent without any information; but the number so sent in the patient's real interests was very small. The radiologist should treat the clinician in a truly professional and consultative way, and in difficult cases should try to arrange a personal discussion. He ought to have beds of his own. His relations with his patient should be strictly ethical and as wise and reticent as possible, and he should never give away the clinician. The unsatisfactory clinicians met in actual practice could be divided into (1) those who regarded radiology as a joke—these could be allowed to die out; (2) those who regarded it as unimportant and radiologists as opponents rather than helpers—these were diminishing; (3) those who belittled radiologists and withheld knowledge about the patient; (4) those who wanted to interpret the radiograms themselves; (5) those who expected a non-medical radiographer to interpret X rays; (6) those who wanted the films interpreted as pictures only, without any opinion about the condition of the patient; (7) those who left too much to the radiologist and ignored the clinical aspect of their cases. Radiologists were of two kinds—pure radiologists and practitioners taking radiology as their specialty. It took a population of 50,000 in a town to maintain a pure radiologist. The relation of the general practitioner radiologist with his clinical colleagues was less simple than that of the pure radiologist, and he must be particularly ethical in his conduct. The radiologist must use all the knowledge he had, apart from the

See THE LANCET, Dec. 7th, p. 1214.

X ray showings. The clinician could not properly dictate treatment to the specialist unless he was himself a skilled electrotherapist. The radiologist must be right, and to be right he needed experience, good films, careful technique, and good apparatus.

Dr. D. D. MALPAS said that he parried patients' questions by explaining that he had not got a finished story until he had seen the last film.

Dr. A. J. ILES said he told patients that only a bad judge would condemn the prisoner before he had all the evidence. Radiologists were entitled to loyalty which they did not always get from clinicians.

Dr. S. MELVILLE said he had suffered in the past from the difficulties Dr. Batten had described, but had noticed a great improvement of recent years in the attitude of clinicians. The fault lay nowadays, he felt, with the radiologist, who sometimes foolishly encroached on the province of the clinician and offered indifferent work. He must offer really good work and refrain from dogmatising unless certain.

Dr. GRACE BATTEN related some of the extraordinary requests and inadequate requisitions she had received from clinicians. All these people triumphed over or blamed the radiologist for not making a correct diagnosis.

Dr. JOHN MUIR said that the only way to get peace in this world was to suffer fools gladly, and urged a conciliatory attitude towards clinicians. If the practitioner with his living to make could save his face by blaming the radiologist it was but human to do so. The radiologist should never be afraid to say he did not know.

Dr. FFRANGCON ROBERTS agreed with Dr. Muir and had no complaint to make of his hospital colleagues. The panel practitioner must be credited with doing his best under difficult circumstances. What to tell the patient constituted a most difficult problem, which depended largely on the kind of patient and the kind of doctor. It was no use beating about the bush with intelligent patients. Sometimes a patient moved into a new district from which a new doctor would write or wire for the films of an earlier examination; this was quite wrong, and the new doctor had no right to anything but a copy of the report.

Dr. MALPAS agreed that radiologists often made trouble for themselves and that a more conciliatory manner would be better.

Dr. F. I. JUPE was pleased to think that the *mariage de convenance* between clinician and radiologist was being changed to a love match, and that both parties were coming to look on the patient as their common child.

Dr. ILES spoke of the difficulty of deciding to whom the film by right belonged.

Dr. MILES asked to what extent clinicians should be allowed to see the film. He thought the radiologist's report should be enough, except when a surgeon or dentist had to operate as a result of the report.

Dr. G. HARDMAN said the radiologist ought to give the report to the new doctor on request. He thought that in the main radiologists received great courtesy from their colleagues.

Dr. A. MACGREGOR thought the clinician often insisted on a definite statement when the radiologist was unprepared to make one.

The CHAIRMAN thought it was a question of give and take; when a radiologist disregarded the clinical aspect of his cases he was rapidly degenerating into a radiographer. He must go into the history and make an examination. He (Dr. Rowden) never let films go out of his possession; if he did they never came back. The film was the property of the person who took it, but the patient had a perfect right to hear the interpretation.

Dr. BATTEN, briefly replying, said that the films belonged to the radiologist who had ordered them to be taken or to the hospital, but the doctor had a right to see them and the patient had a right to know the report.

Aspects of Radiation Therapy.

Prof. S. RUSS spoke of intensity relations, pointing out that greater intensities produced more violent reactions. Radiation of any kind released electrons from the medium and might or might not produce clinical changes. The liberation of electrons was a disturbing factor, though a perfectly normal process in the human body, which spontaneously liberated about a million ions a minute. The rate of release need not be very great in order to produce appreciable effects—something of the order of one electron per cell per second.

Mr. GEOFFREY KEYNES spoke of the radiological treatment of carcinoma of the breast. Radiology in the past had been confined to four classes of patients—those who refused operation; those treated prophylactically after operation; those treated for recurrences after operation; and the hopelessly inoperable. Comparison between radiology and surgery could only be based on operable cases. Surgery at St. Bartholomew's had not been satisfactory, and the successful eradication of local recurrences by radium had led to the treatment of primary cases. Great success had followed in a series of 145 cases, all of which had been carefully documented. Good results had been obtained in 45 out of 67 patients up to the end of 1928 and half of them were free from demonstrable signs of disease. Of 26 inoperable cases a good result was recorded in 12, and six of them were apparently cured. It was unlikely, though possible, that X rays would have been equally successful with so little damage. In the early case it was possible to promise almost with certainty that in five months after a single radium treatment the breast would be apparently normal. X rays had a part to play in supplementing radium treatment in the few cases where it had proved inadequate.

The Relative Value of X Rays and Radium.

Dr. N. S. FINZI dealt with the relative value of radium and X ray therapy in malignant disease. Both were valuable, and it was curious how seldom patients took a radiological as well as a surgical opinion. During 20 years' of experience he had seen improvement follow each increase in voltage and filtration of X rays, and the limit of this improvement had by no means been reached. For some cases radium was more valuable, for some X rays, and for others both. Radiologists should be fully acquainted with both agents. The importance of radical X ray treatment was not adequately appreciated; the results fully justified the courage required on the part of radiologist and patient. Many surgeons were just learning to apply radium; it was to be expected that they would have many failures. The radium bomb had many of the advantages of X ray treatment, but the rays were more penetrating and probably more efficient physically and biologically. The greater homogeneity obtained with X rays must be balanced against the greater effectiveness of radium gamma rays. In very radio-sensitive growths X rays were the treatment of choice every time, even in the skull. For very small growths, tending to remain localised, radium was preferable. For very radio-resistive cases radium was to be selected if surgery or diathermy was inapplicable. By increasing the time factor and decreasing the intensity better results could be obtained in many cases. The position of the growth was important. In the mouth and upper air passages the best results had been obtained with X rays alone or a combination of X rays and radium. Seeds in the local growth and a radium needle barrage for the cervical glands had given good early results, but the cases would probably show recurrences. The radium bomb through six points of entry would probably prove eventually to be the ideal application. In growths of the cervix radium for the growth and X rays for the glands were best; after X rays alone there was a tendency to recurrence. In rectal carcinoma radium seemed definitely better than X rays. If the mediastinum were involved in breast cancer X rays might still give good results, and they

might do wonders for early cases. With the use of radiations for operable growths a great change had come over the prospects of the patient. Skill varied, and counted for a great deal.

Dr. MALCOLM DONALDSON said that for cancer of the cervix at St. Bartholomew's about 5 mg. of radium element, split up into 20–25 needles, was inserted all round the growth and left for 144 hours. He showed figures from various centres; the survival rate for the needle technique was not quite so good as for other methods. Needles seemed to be unsatisfactory for deeper parts of the growth. He therefore proposed in future to supplement the Stockholm technique with, first, intra-abdominal radium and, secondly, X ray treatment. He reviewed the 34 cases he had treated with intra-abdominal radium, and declared that the method was worth continuing. He now treated carcinoma of the vulva with very small intensities for two or three weeks; the primary results had been astonishing. The time factor was also important in cancer of the body. In non-malignant conditions the only problem that arose was to decide which patients could justifiably have their ovaries destroyed. Larger doses might perhaps reduce the menopausal symptoms.

Dr. J. E. LYNHAM spoke of the association of radium and X rays in the treatment of malignant disease. Radium undoubtedly gave results rapidly in some cases, but the final results of X rays were quite as satisfactory; the two agents were supplementary. Permanent success after radium only followed when the disease was localised, and was comparable with surgical success except that the cases treated by radium were inoperable. When the disease had become generalised even local cure could not be obtained, and when recurrence developed in patients previously doing well it was usually a sign of general activation of disease all over the body. There was no means of telling whether or not the disease had become generalised in any particular case. Extension by the lymphatics could be prevented by prophylactic irradiation by radium barrage, radium pack, or systematic X ray applications. Surgically treated cases should be followed up by periodic X ray or radium treatment to the site of the original tumour and to the related glands. As a matter of physics as well as of clinical experience, X rays and radium tended to approach each other as time went on, and the best results would be attained by combining or alternating them.

Use and Abuse of Radium Needles.

Prof. F. L. HOPWOOD read a paper on behalf of Miss F. E. Smallman and himself, and dealt with the economic aspect of his subject. At St. Bartholomew's it had been found that half a gramme of radium, distributed in 222 needles and eight other containers, could be used for 899 patients in a year. Needles of 1 mg. and 2 mg. radium element content were best for a general hospital, and an average yearly efficiency of use of 50 per cent. or more should be considered satisfactory. Long needles were much more valuable than short ones; there was a marked gain in mechanical strength if 0·6 mm. of platinum were used for the walls instead of 0·5 mm.; and needles used for surface application were less liable to damage than those inserted into malignant growths. Every trivial injury should be taken seriously and the needle set aside for immediate repair. The weakest spot was the eyelet, and a new and stronger type of eyelet had recently been introduced. Leakage from damaged needles was rare if they had been gold-soldered, but was such a nuisance that needles should be periodically tested. If any loss was suspected a visual and electroscopic search should at once be carried out on all refuse and laundry, but containers which had passed through an incinerator might be negative to the electroscopic test owing to melting of the solder seal. During ten years St. Bartholomew's had lost track of three needles, containing 3 mg. of radium.

Dr. ROWDEN thought that the kind of ray which would alter cell activity was the kind of ray that would be absorbed by the cell; the short-wave ray in its passage through the cell generated secondary rays which were absorbed. Superficial growths would disappear very rapidly under soft ray treatment; which ray was to be chosen?

Prof. HOPWOOD replied that the question was not simple. Experimentally the type of damage produced by the two types of radiation were almost indistinguishable. The type of ray chosen must be the one that got to the required spot, but time and intensity reactions also came in. The rate of absorption depended on a number of factors.

THE ANNUAL DINNER.

The annual dinner of the Institute was held on Friday, Dec. 6th, at the Trocadero, London, the President of the Society, Mr. C. Thurstan Holland, taking the chair at a large assembly. After the loyal toasts Mr. Cuthbert Andrews proposed the Prosperity of the Institute, in the course of which he detailed regrets at the changes in the management of the Institute, which had occurred since his own retirement from many offices, feelings which, he said, were shared by other recently retired officers. He pointed out that since the affairs of the Institute were no longer under their direction, an unpicturesque sense of order had got into the place, in accordance with which letters were now answered and even filed, financial records were kept in account books, and dark rooms had become dark. He lamented the good old days and left the President to explain the situation. Mr. Thurstan Holland, in reply, said that this, he thought, would be positively his last appearance as a President. The situation in which he found himself had occurred thrice before, twice in connexion with one of the bodies composing the Institute, and once at an International gathering. Now, he said, there was nothing further left for him to do officially, unless radiological activities should be opened to those who were translated to the stars, a terrible prospect, which had been held out before them during their conferences by Prof. Eddington. In respect of the meeting just held he was justified, he said, in regarding it as a great success, as the high-class papers that had been read revealed the extending possibilities of radiology. But he pointed out that in regard to the therapeutic relation of radium to cancer, the belief that a cure for cancer had been found was unjustified, though radium was now of such immense assistance, a view that had been expressed by their distinguished guest, Prof. Gösta Forssell, in the Mackenzie Davidson Memorial Lecture.

The toast of the Guests was proposed by Major C. E. S. Phillips, who spoke of the progress of the Institute and of the early British work in radiology, in founding the first society, and issuing the first journal devoted to the subject. Prof. Eddington, in an amusing reply, described himself as a celestial astronomer, and while testifying to the value of X rays to the star doctor, said that the celestial astronomer could not get much further than the terrestrial physician—that is, he could diagnose but must leave the rest to Nature. In illustration of the part that radiological methods might play in astronomy, he said that certain dwarf stars, which formerly were ruddy had become pale, and through radiology it had been shown that this was due to an increase of internal density; and he imagined the case of a famous astronomer who announced to his wife that he had detected a star of unique density and that, to do her honour, had called it after her. Mr. Donald Armour, President of the Medical Society of London, and Dr. G. W. C. Kaye, a late President of the Institute, also replied.

The Health of the President was proposed by Prof. Gösta Forssell, and after a brief reply from Mr. Thurstan Holland, a dramatic skit, described on the programme as a "surprise item," was rendered by the author, whose name did not appear on the programme, and three colleagues.

Public Health Services.

REPORTS OF MEDICAL OFFICERS OF HEALTH.

THE following are some 1928 statistics of four counties:—

Name of county and estimated (R.-G.) population.	Birth-rate.	Death-rates per 1000 of the population.					Death-rates per 1000 births.		
		All causes.	Tuberculosis.	Cancer.	Respiratory diseases with influenza.	Heart disease.	Infant mortality.	Young child (1–5 yr.) mortality.	Maternal mortality from childbirth.
Somerset .. (405,250)	14·7	11·9*	0·75	1·66	1·3	2·2	45	18	4·4
Lancashire† .. (1,811,000)	14·6	11·9	0·75	1·38	2·0	1·9	69	29	6·1
Derbyshire‡ .. (624,100)	17·8	10·2	0·72	1·19	1·3	1·5	63	—	4·3
Essex .. .. (1,083,700)	16·3	10·0	0·75	1·39	1·2	1·8	51	23	4·0

* The standardised death-rate is 9·4.
† Population adjusted from 1,809,120 for changes of boundaries during the year.
‡ Population adjusted from 622,400 for changes of boundaries during the year.

Somerset.

Dr. W. G. Savage reports that the county was invaded by small-pox on four occasions and that in three instances there were single cases and in the other three persons in one family affected. The notifications of typhoid fever were higher than usual, 41 cases with 6 deaths. Twenty of them were associated with an outbreak at Weston-super-Mare, the cause of which was not elucidated. There was a welcome decline to 13 cases in the notifications of encephalitis lethargica, but the deaths ascribed to it numbered 9. Measles was more fatal than usual and caused 36 deaths, 29 being in children under 5 years of age. There are ten clinics for venereal diseases, and the figures show an increase, both in new cases and attendances. Seventy-nine per cent. of the new cases attended at county council clinics. Dr. Savage points out that the system of multiple clinics makes it possible for every case to obtain treatment at a reasonable distance from home and facilitates following up. As a result, patients attend until cure is effected much better than formerly. A table illustrates the considerable decline in the tuberculosis mortality during the last 20 years. Thus on the 1928 population 20 years ago there would be over 400 deaths annually, whereas in each of the last three years there have been under 300. The unused buildings at Quantock Sanatorium were again used as a holiday camp for 80 debilitated girls and boys with most satisfactory results. The tuberculosis officer, Dr. L. J. Short, states that the difficulties of exact diagnosis have been increased lately by the appearance of a form of influenzal broncho-pneumonia, which for a long time closely simulates tuberculosis and may go on to a fatal termination.

Infant mortality was lower than ever before, but Dr. Savage points out that 52 per cent. of the infant deaths took place during the first month, an illustration of the importance of prenatal work. The midwives attended 57 per cent. of the births and the medical practitioners 43 per cent., the exact converse of what took place 12 years ago. A table shows that although the maternal mortality-rate has shown considerable fluctuations since 1910, there has been no decided fall. There were two cases of impairment of vision among the 34 cases of ophthalmia neonatorum notified. In one case there was delay to notify; the onset was on Jan. 10th, and on Jan. 27th the case was sent to the Bristol Eye Infirmary. The other was a severe case admitted to Taunton Hospital five days after onset, but the mother refused to stay in hospital until treatment was completed. Antenatal cards are supplied to all the midwives and examinations of urine are made for them in the county laboratory. Leaflets are also supplied to expectant mothers. The scheme for searching out rickets, especially in the rural areas, continues satisfactorily. There were 241 cases brought under treatment and the figures show 14 per cent. cured, 24·6 per cent. practically cured, 42·1 per cent improved, and 19·3 per cent. with no visible improvement or needing transfer to the orthopædic clinic. The scheme has brought out the fact that other abnormalities, which may be confused with rickets, need special attention, and this extension of the scheme has been made possible by the appointment of Dr. Hilda Halliday as assistant medical officer in April, 1928. The orthopædic scheme dealt with 440 deformities, and Dr. Savage reports that a much larger percentage of the cases seek treatment in the early stages of crippling.

As regards pollution of rivers no trouble was experienced during the year from the effluents of milk depôts. There was a decline in house building, new houses numbering 1662, as compared with 2835 in the previous year. Dr. Savage points out, however, that only 750 houses are needed for increase of population and that the 1928 figure of 1662 does something to reduce house shortage and to enable unfit houses to be closed. Under the Rural Workers Act, £1937 was paid towards the renovation of 22 dwellings during 1928. In the matter of meat control the county council have had to draw the attention of the local authorities to the requirements of Section 8 of the regulations as much laxity has arisen with respect to the giving notice of times of slaughtering. In a number of the county areas no meat was condemned at all, and it is not difficult, says Dr. Savage, for diseased animals to be killed and unsound meat to be sold for human consumption. There is some improvement in the working of the Milk and Dairies Order, 1926, but in some districts this work receives very inadequate attention. During the year 40 clean milk demonstrations were given at various farms with an average attendance of 24. There were also four competitions for milkers and another clean milk competition. During the year 273 samples of mixed milk were examined biologically for tubercle, and six, or 2·2 per cent., gave a positive result. During 1926 and 1927 the percentages were 2·2 and 2·18, and Dr. Savage points out that the Somerset percentages compare very favourably with other parts of the country. In addition to the cases mentioned, two reports of tuberculous milk produced in Somerset were received, one from Bristol and the other from London. In the follow-up of these eight tuberculous milk samples—on five farms six cows with udder tuberculosis and one cow with considerable tuberculosis and yielding tuberculous milk were detected and destroyed, while on the other three farms no cow affecting the milk-supply could be traced.

Lancashire.

Dr. J. J. Butterworth's report contains much detailed information with respect to the sanitary needs, activities, and statistics of the 19 boroughs, 81 urban districts, and 19 rural districts which make up the administrative county. Water-supply is a difficult matter in some portions of the county and Dr. Butterworth hopes that the Local Government Act of 1929 may be helpful. A table of samples taken during the year shows that 2 out of 20 samples from public supplies were unsafe or doubtful, while of 34 supplies to single houses, 6 were definitely unfit and 12 of doubtful quality. A great part of the county comes under the jurisdiction of the Mersey and Irwell and Ribble joint committees as regards pollution, and Dr. Butterworth refers to the circular issued by the Ministry in March advising each county and county borough council to consider the advisability of

becoming a constituent member of a joint authority for the prevention of river pollution. The new houses erected numbered 6646, to be compared with 10,170 in the previous year. The Rural Workers Act has not been much utilised as only £736 was granted in respect of eight dwellings. Thirteen joint planning committees now function in the Manchester district and five in the remainder of the county. Every urban district with a population exceeding 20,000 was required to prepare a scheme before Jan. 1st, 1929, but the date has now been extended to Jan. 1st, 1934. All the 17 boroughs, and eight of the nine urban districts in the class mentioned, have taken some action in the preparations of schemes.

The complaints of tuberculous milk produced in the county received from outside authorities numbered 329. The county veterinary surgeons in each case visited the farm and examined the cattle but it is not stated what success they had in detecting the offending cow. There are 7841 cow-keepers in the county but only 11 entered for the fifth Clean Milk Competition, and there are only five licensed to produce "Certified" milk. The county analyst, Mr. G. D. Elsdon, returned 95 out of 2771 milk samples, or 3·4 per cent., as adulterated. He further shows that the average composition of all the samples, including those adulterated and appeals to the cow, was 3·74 per cent. of fat and 8·90 per cent. of solids—not fat, and that the experience of the last nine years proves that it is rare for the milk of a herd to fall below the standard of 3·0 per cent. of fat and 8·5 per cent. of solids—not fat. Thus, out of 25,474 samples 4·4 per cent. fell below the fat standard, while 2·9 per cent. fell below the solids—not fat standard. These percentages at first sight appear to be high, but when they are checked by appeals to the cow it is fairly obvious that the majority are sophisticated. Thus, out of 461 appeals to the cow only 112 fell below the fat standard and 35 below the standard for non-fatty solids.

The notifications of encephalitis lethargica have declined steadily since the peak year of 1924, when there were 299 cases and 103 deaths. In 1928 there were 74 notifications and 76 deaths. The death-rate from pulmonary tuberculosis was the lowest ever recorded in the county. The new cases of venereal disease attending the clinics show a considerable increase on preceding years. The new cases of syphilis are about the same as in 1923 but the new cases of gonorrhœa are nearly double. More than half the confinements were attended by midwives and the percentage of stillbirths to live births reported by midwives was 2·76. The damage done by ophthalmia neonatorum was exceptionally high—viz., two cases of total blindness and five of impaired vision. The county council is the local supervising authority for the whole of the administrative county, but for child welfare its area comprises 77 districts in which 10,765 of the 26,390 births in the county were registered. Little has apparently been done in the matter of antenatal clinics. The county council has established two, at Irlam and Litherland, and has made arrangements for the use of the antenatal clinics at Widnes and Chorley, but no particulars are given as to the attendances at these clinics. In addition to this the school nurses, who also act as health visitors, paid visits to 2068 expectant mothers. The county orthopædic scheme has made progress, and provided treatment for 2308 children. Many more authorities have joined and there are now 22 out-centres in addition to the six hospitals included in the scheme.

Derbyshire.

Dr. W. M. Ash's report contains many interesting features. During the year the orthopædic scheme was further developed. Clinics were opened at Bakewell, Chinley, and Shirebrook, making nine in all. The sparsely populated western area is provided for by a motor service and occasional clinics at existing buildings or by visits of the orthopædic staff to the homes. There are 55 beds at Bretby hospital for surgical tuberculosis and eight for non-tuberculous cripples. The new 50-bed block at Bretby will be opened during the present year and the plan of an additional 32-bed block for adult surgical tuberculosis which is in the early stages of erection, is given. The crippled patients treated during the year at Bretby numbered 107; 25 cases of non-tuberculous crippling and the remainder with one or more tuberculous lesions. Of the 43 patients discharged during the year the average duration of stay was 419 days for the tuberculous and 125 for the non-tuberculous. Bretby has been approved by the Board of Education as a special school. Dr. Ash is very emphatic as to the crime of leaving young children at home with an open case of tuberculosis. The Grancher system has not found favour in this country and the alternative is the removal of the advanced case from the home. This is difficult in Derbyshire because accommodation is only provided for this type of case at Chesterfield, and it is essential that institutional accommodation for advanced cases should be so situated that friends and relatives can visit the patient with the minimum of trouble and expense. A beginning has, however, been made by the opening of a six-bedded block for advanced cases at Darley Dale.

A complete system of antenatal clinics has now been established throughout the county under the direction of an obstetrician, Dr. Edith E. Stephens. There are 12 clinics, mostly held twice a month. The inspection of the various sewage works has been made more effective by the appointment, in March, 1928, of an additional sanitary inspector. The effluent samples collected during the year were classified as follows: good 245, satisfactory 239, unsatisfactory 109, and bad 149. Two vendors were fined for the sale of sausages containing boric acid. The notifications of small-pox during the last eight years have numbered 21, 228, 476, 1123, 339, 224, 474, and 609 (with no deaths) in 1928. The County Clean Milk Competition attracted 49 entrants, 14 for the class of previous prize winners, 28 for competitors who have not won prizes, and 7 for retailers in the borough of Chesterfield. The animals slaughtered under the Tuberculosis Order numbered 517, 448 with advanced and 68 with not advanced tuberculosis, and 1 not tuberculous. Of 490 milk samples examined for tubercle 77, or 15·7 per cent., gave a positive result.

The school report shows that three new schools of the "justly famous" Derbyshire type have been completed. Most attractive illustrations are given and a descriptive note by the architect, Mr. G. H. Widdows. The schools are heated by treating the whole of the floors as radiators and they might perhaps be described as garden schools built on open-air lines. A noteworthy departure was the opening of the first of the new clinics at Alfreton, a plan of which is given. This building will be used for the combined purpose of a school clinic and an infant welfare centre, and has been erected in the grounds of the council school. The increased efficiency of the dental service is illustrated by a graph comparing conservative work with extractions. In 1925 extractions bulked much more largely than conservative work, but now the two are on a par. Mr. H. P. Sutcliffe, the senior dentist, makes an interesting communication on the treatment of irregularities of dentition under the conditions found at a school clinic, and illustrates his remarks by striking photographs of casts before and after treatment.

Essex.

Dr. W. A. Bullough says that steady progress has been made with the county tuberculosis scheme. The new sanatorium at Black Notley is nearing completion and improvements carried out at the Harold Court sanatorium have been a great asset. The increasing work of nine tuberculosis care associations has made heavy calls on their funds, which have been supplemented by the county council. Since 1921 the population has increased by about 170,000, largely owing to the rapid growth of Dagenham and other areas near the metropolis. During the last eight years 13,649 houses have been built at Dagenham and a further 1151 houses are contemplated. This rapid growth has created a need for the extension

of sewerage, sewage disposal, and water-supply schemes. The advisability of concentrating sewage purification by means of valley sewers at one large efficient plant instead of having several smaller schemes has been brought forward in the case of the Roding and Ingrebourne valleys. The South Essex Waterworks Company, which had to supply a population of 244,350 in 1922, now has to supply a population of 350,000. They are obtaining additional water from the river Stour and providing a 37-mile aqueduct from Langham to Ilford. It is hoped that authorities in the "waterless" part of Essex will take advantage of the facilities provided by this aqueduct. Under the Housing (Rural Workers) Act, 1926, grants during the year amounting to £3015 have been made in respect of 35 cottages. Up to December, 1928, 60 Essex cottages had been reconditioned under this Act.

The county analyst, Dr. Bernard J. Dyer, reports that 103 out of 1604 milk samples were unsatisfactory; 44 showed evidence of added water varying from 4 per cent. to 34 per cent.; 53 were deficient in fat, varying in extent from 5 per cent. to 45 per cent., and five samples contained annatto. Instruction in the production of clean milk has been energetically prosecuted. Essex won the Stapleton Cup in the inter-County Clean Milk Competition, held by the British Dairy Farmers Association. Routine inspection of cows by veterinary surgeons has made no progress. Of 84 samples of milk examined for tubercle 6, or 7 per cent., gave a positive result. In the follow-up of 11 "outside" complaints of tuberculous milk, four cows at four farms were dealt with under the Order; at five farms there was no evidence of disease, and at two farms the whole of the herds had been sold by public auction.

Much is hoped from the deliberations of the departmental committee which is considering the very strong report made by Mr. J. C. Dawes, Inspector of the Ministry, as to the nuisance caused by the dumping of London's refuse in Essex. Suspicion has been thrown on Brightlingsea oysters for causing typhoid fever in one case and dysentery in another. The Fishmongers Company have stopped the sale of Brightlingsea oysters in London. Mosquito control work goes on satisfactorily at Frinton-on-Sea and Walton-on-Naze. In September the medical officer of health of Chingford reported malaria in a boy of 8 years, who had stayed with his family at Walton. Investigation revealed seven cases of indigenous malaria (three of whom had suffered from malaria some years previously) in houses close to that in which the Chingford family stayed. At the back of the last-named house is an orchard and farm where *Anopheles maculipennis* has been found in both larval and adult stages. It is suggested that one or other of the patients who had formerly suffered had a relapse and infected the mosquitoes, which caused the indigenous cases.

INFECTIOUS DISEASE IN ENGLAND AND WALES DURING THE WEEK ENDED NOV. 30TH, 1929.

Notifications.—The following cases of infectious disease were notified during the week:—Small-pox, 198 (last week 279); scarlet fever, 3311; diphtheria, 1807; enteric fever, 55; pneumonia, 1272; puerperal fever, 52; puerperal pyrexia, 109; cerebro-spinal fever, 8; acute poliomyelitis, 11; acute polio-encephalitis, 3; encephalitis lethargica, 14; continued fever, 1; dysentery, 8; ophthalmia neonatorum, 87. No case of cholera, plague, or typhus fever was notified during the week.

The number of cases in the Infectious Hospitals of the Metropolitan Asylums Board on Dec. 3rd–4th was as follows: Small-pox, 308 under treatment, 10 under observation (last week 319 and 8 respectively); scarlet fever, 2813; diphtheria, 2725; enteric fever, 82; measles, 425; whooping-cough, 110; puerperal fever, 32 (plus 18 babies); encephalitis lethargica, 125; poliomyelitis, 7; "other diseases," 12. At St. Margaret's Hospital there were 7 babies (plus 3 mothers) with ophthalmia neonatorum.

Deaths.—In the aggregate of great towns including London there was 1 death from small-pox, 3 (1) from enteric fever, 26 (7) from measles, 8 (2) from scarlet fever, 22 (3) from whooping-cough, 47 (10) from diphtheria, 81 (15) from diarrhœa and enteritis under two years, and 56 (11) from influenza. The figures in parentheses are those for London itself.

The death provisionally classified to small-pox was assigned to Poplar; it was, we understand, that of a premature baby. The deaths from enteric fever outside London were reported from Manchester and Gateshead. Diarrhœa accounted for 15 deaths at Liverpool, 8 at Salford, and 5 at Birmingham. Wigan reported 5 deaths from measles, Stoke-on-Trent and Manchester each 3. Bradford reported 4 deaths from whooping-cough, Liverpool 3. Liverpool also reported 6 deaths from diphtheria and Hull 4.

The number of stillbirths notified during the week was 253 (corresponding to a rate of 43 per 1000 births), including 39 in London.

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

The Ideal Mental Hospital.

THE General Board of Control for Scotland claims to possess the ideal mental hospital at the Edinburgh District Asylum, Bangour Village. This institution lacks only one equipment, which is represented by the solarium in course of erection at Govan District Asylum. Scotland still retains the old word "asylum" which England has discarded on account of its unfortunate associations. In its original meaning of "refuge" or "a place where you cannot be robbed" no word could better denote the haven needed and often eagerly sought by those mentally disordered, but it has undoubtedly come to suggest to the uninstructed a dreary prison for maniacs where treatment is harsh and even fair play is rare. It is no doubt a matter for argument whether the best procedure is to change the name in order to disarm mistrust or so to insist on the true nature of the institutions thus called that the name loses its associations of horror. Whatever the name, there is no doubt that the modern mental home is approximating rapidly to the ordinary hospital. As the Scottish commissioners remark, "it is now more than twenty years since it was clearly demonstrated that only a negligible number of the mentally affected, whether on admission for the first time or as the result of an exacerbation of a former mental disorder, cannot be treated under the same conditions as obtain in general hospitals." Their idea of the ideal hospital includes every kind of equipment for diagnosis and treatment. If there are 500 beds or more there should, they say, be an X ray apparatus, and smaller hospitals should have access to the radiological installation of some neighbouring institution. To control the radiological department there must be a medical officer with special training and experience, and on this official will also depend the conduct of electrical therapy, hydrotherapy, and light therapy, as well as massage—therapeutic agents which are becoming general in all large mental institutions. The Edinburgh district asylum has, of course, an operating theatre, an occupational therapy department, an energetic laboratory, and an abundant supply of literature through its library. It has recently added to its visiting staff a chiropodist—a specialist who must be almost unique at present. A well-equipped dental room and a visiting dentist are, of course, essential in a good mental hospital, and consultants in each of the special branches should also be available. A constant source of anxiety to the medical superintendent is the insane carrier of dysentery and enteric. Before they are detected these patients—usually

women—spread the disease far and wide. Scotland has dealt with this problem by providing a special detached hospital large enough to accommodate carriers from the mental hospitals all over the country. This excellent provision is due to the wisdom of the Govan District Board of Control. The hospital has been planned on the most modern and generous lines and provides every comfort for the patients who are so unfortunate as to require segregation for this reason. Scotland was a pioneer in offering a solution of the problem of laboratory work in the smaller institutions. Nearly 20 years ago the Scottish Western Asylums joined together in the foundation of a research institute, with a central laboratory in Glasgow, to undertake the routine examinations and carry out research on behalf of a number of mental hospitals. The nineteenth annual report, just published,[1] shows that this excellent scheme is in financial difficulties but convinced of the importance of carrying on its work. The investigation of intestinal flora and the laboratory work connected with the malarial treatment of general paralysis would be almost impossible for the individual asylums, and the Institute hopes also to be able to initiate research into the problems of mental disease. An important feature of the Edinburgh institution, considered as the "ideal," is the high proportion of voluntary inmates. Nobody interested in the mental health of the nation can rest content until patients are admitted freely on a voluntary basis to every mental hospital in these islands.

A Hospital Waiting-list.

The size of the Edinburgh Royal Infirmary waiting-list has resulted in an agitation for more beds. At a meeting of the League of Subscribers, Sir David Wallace, representing the managers, made an analysis which showed that the waiting-list of 3009 (on Nov. 1st) was somewhat inflated, but with every correction the number of surgical cases requiring admission is still serious.

During the last year the infirmary dealt with 19,800 cases: 4000 medical and 14,200 surgical. The out-departments handled 67,623 cases, an increase of 5538 over the preceding year. The ordinary income was £114,896; the extra-ordinary income, £139,382; total, £254,278. This was far beyond any previous year, largely on account of legacies and donations. The ordinary expenditure was £143,684; the extra-ordinary, £18,612; total, £162,296, leaving a balance with the general fund of £91,962.

Ten years ago, said Sir David, in-patients numbered 4056 medical and 8443 surgical. The total of medical cases was still about the same, but the surgical ones had increased by 6000. The size of the waiting-list was partly due to increasing willingness to go to hospital for operation. Practically every patient now wished to go to hospital. Out of 1668 surgical cases waiting, 738 no longer required treatment, either because they could not be traced or because they had recovered. A considerable number were in special departments, thus in the present list 518 waited admission to the ear and throat department despite its enlargement three years ago. It could be stated, however, that no urgent cases, emergency or other, were refused admission. In the majority of the cases put on the waiting-list a little delay was not deleterious to the patient. But emergency cases were so numerous that waiting cases were often delayed for a "good long time."

The new Radium Institute—the first for Scotland—was to be an integral part of the infirmary; and if the contemplated plans were carried out it would mean an increase of 36 beds. The new Cripples' Hospital at Fairmilehead would also afford some relief, and pressure on voluntary hospital beds would be reduced by coöperation with the new health authorities. He was convinced that real injury, mental or physical, to the waiting patients was much less than might be supposed. The managers were doing everything they could to get patients in at an earlier period.

[1] Nineteenth Annual Report of the Scottish Western Asylums' Research Institute, 1928. Coatbridge: Alex. Pettigrew, Ltd.

The meeting thanked Sir David for his address, but felt that something more practical was required from the managers, who should not underestimate the feelings that lay behind the motion. If nothing was done, the subscribers would lose confidence in an institution which they had so generously supported. It was intimated that £21,564 had been gathered from 1410 groups of League subscribers, an increase of £129 over last year. Of this sum, greater Edinburgh was responsible for £15,942; country districts for £5622.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

Road Accidents and Hospital Finance.

THE hospitals of Dublin, like those of other cities, have suffered from the increasing burden of gratuitous attendance on the victims of road accidents. This is an aspect of the results of modern road traffic which should not be overlooked in the discussion of compulsory insurance against third-party risks. Mr. A. B. Clery, assistant surgeon to the House of Industry Hospitals, Dublin, discussed the subject in an interesting address delivered last week to the Dublin Rotary Club. He pointed out that the treatment given by the hospitals diminished the liability of those responsible for the accident, and it was unjust that the hospitals should be expected to do this work for nothing. The loss incurred in this way had to be made good from moneys intended for the relief of the sick poor. Even if the injured party were awarded damages to cover hospital expenses, the money did not always reach the hospital. Mr. Clery stated that in our hospitals in Dublin 42 interne cases of road accident had been treated since Jan. 1st, involving an expense of £465, while the receipts on account of these cases was only £82. He estimated that the Dublin hospitals lost annually between £3800 and £4000 by their care of cases of road accident treated in the hospitals, without taking account of the large number treated in the externe departments. As the number of road accidents was increasing enormously the problem of safeguarding funds intended for the relief of the sick poor was becoming more urgent. Speaking on a vote of thanks to Mr. Clery, Mr. Henry Stokes, surgeon to the Meath Hospital, said that the care of the victims of a single 'bus accident which occurred last summer had already cost his hospital £300, for which they would not receive a penny.

An Electrotherapeutic Clinic in Dublin.

The Joint Committee in Ireland of the British Red Cross and the Order of St. John of Jerusalem established in Dublin an electrotherapeutic clinic for ex-Service men. There is no longer a need for it for this class, and the committee has now decided to open it for the use of patients of small means. A circular letter has been issued to the medical profession of Dublin inviting them to make use of the clinic in suitable cases. No patient will be received unless recommended by his own medical attendant, and medical men are requested only to send patients who are unable to pay the usual private fees. The clinic is in charge of a certificated nurse, experienced in such work, and it is equipped to provide massage, remedial exercises, electric treatment, radiant heat, ultra-violet light, and diathermy. It has a useful function to perform.

Mass Effect of Goitre.

At a meeting of the Ulster Medical Society on Nov. 28th Mr. Howard Stevenson, the President, introduced Dr. A. Murray Drennan, the newly appointed professor of pathology in the Queen's University of Belfast, who read a paper on Some Aspects of Goitre: the Mass Effect. Prof. Drennan based his remarks on work done by himself and his former colleagues at the University of Otago, New

Zealand, in which observations of the histological appearances of the thyroid gland in health and disease were correlated with the clinical history, with the gross bulk of the gland, and with estimations of its iodine content. He demonstrated by diagrams and a large number of lantern slides of microscopical sections the various histological appearances of the gland, and observed that the changes considered to be characteristic of the different types of goitre could be found in the post-mortem room in glands of normal size, where there was no history of symptoms. He then proceeded to show the effect of diminished iodine intake, which led to increase in size, but to a lower pressure of iodine, succeeded, if iodine were administered, by a colloid toxic goitre, provided the mass of gland were sufficient. If the gland was in a diffuse secretory stage with increase of its smaller vesicles, the typical appearances of exophthalmic goitre might arise; in this case administration of iodine enabled the gland to revert to a storage state. He emphasised the complexities of the thyroid problem, amongst these being the extraordinary number of secondary changes, such as hæmorrhage, fibrosis, and atrophy which complicated the clinical findings.

In the discussion which followed, Dr. Olsen said that as a co-worker of Marine in America he had followed the work of the Otago school with interest. He expressed the view that the different forms of goitre were not so sharply separated as had been thought; he was of the opinion, however, that true exophthalmic goitre should not be treated surgically, while obvious adenomata should be operated on.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Vasoligature Deemed Assault.

A WEEK or two ago there was a very remarkable trial in Graz, the second university city of Austria. A surgeon of good reputation was accused of causing bodily harm to a large number of men by performing on them an operation which, as the court believed, had the effect of sterilising them permanently. It appeared that a prisoner, when examined before starting a term of hard labour, showed on his scrotum scars from an operation which he explained he had had done with the object of becoming sterile. In his native town, he said, a large number of men had applied to a surgeon named Schmerz for the same purpose, and had obtained the desired result. In the course of the proceedings it was stated that more than 700 men had been operated upon by Dr. Schmerz in the last two years. The court regarded this wholesale sterilisation as a danger to public welfare, and although the accused said that his operation was only a temporary sterilisation and could (so to speak) be undone at any time, and that he always took care to operate only in cases where definite social or medical indications were present, he was found guilty of gross offence. In vain the witnesses and medical experts whom he called gave their evidence for him. In vain it was asserted that the method was perfectly free from any danger in the hands of this excellent surgeon, and that in view of the frequency and danger of abortion vasoligature was desirable where prevention of issue was necessary. Despite these pleas the learned judge found the doctor guilty, and as he could not deal with the offence under any other heading, he turned to an old law of 1858 which applies to injuries inflicted by assault or attack, and sentenced the accused to a fine of 15,000 Austrian shillings (about £450) or two weeks' imprisonment. Naturally this sentence will not be left without appeal. Public opinion has been seriously disturbed, and comments, both professional and lay, are not very complimentary to this way of administering law. It must be added that a certain number of medical men disapprove of Dr. Schmerz's procedure, and hold that the judge's opinion was correct. At any rate, the case will be brought once more before a jury, for otherwise every surgical interference might be regarded in the same light, and every surgeon would run the risk of heavy fines for fulfilling his professional duties.

The Gerson Diet in Tuberculosis.

The treatment of tuberculosis by means of a diet free from common salt continues to be in the foreground of medical discussion. This new treatment, as applied first by Dr. Gerson and later by Prof. Sauerbruch on a large scale,[1] has given excellent results in their hands, but has also been attacked from several quarters. Accordingly a group of eminent Viennese professors was sent to Sauerbruch's clinic at Berlin to investigate the actual conditions of treatment. The commission consisted of Dr. Durig, a physiologist; Dr. Eiselsberg, a well-known surgeon; Dr. W. Neumann and Dr. Löwenstein, specialists in tuberculosis; Dr. Volk, well known for his researches on skin diseases; and Dr. Walzel, also a special surgeon. These men had every opportunity of studying the work in Berlin, and could compare the state of patients before and after treatment by the new diet. Clinical and photographic records were examined, and the commission got a distinct impression that at least in surgical and dermatological cases the diet led to marked improvement. A sine qua non is strict and conscientious adherence to the absolutely salt-free diet—a very trying task both for the patients and the medical and nursing staff. It is not unlikely that some of the bad results obtained at several other centres have been due to neglect of this point. The investigators on their return to Vienna strongly recommended that the method should be tried here, and on this recommendation the Red Cross of Austria has volunteered to place at the disposal of the University of Vienna its tuberculosis sanatorium at Grimmensteinn, 60 miles away, where there is every opportunity for enforcing the necessary diet. Furthermore, at another place much nearer Vienna the same experimental observations will be started. The chief drawback of this useful method is the craving for salt, which soon sets in and somewhat torments the patients. A suitable change in the otherwise fairly uniform diet is therefore of the utmost importance. It may be added here that since Dr. Gerson's first publication of his diet, Dr. Max Jerusalem, a surgeon of the workmen's sickness insurance club, has treated quite a number of patients on these lines, and is satisfied that they represent a real advance in the therapy of tuberculosis of the bones and the joints.

Cutaneous Immunisation.

In view of the difficulty of getting parents to consent to injection of toxin-antitoxin for prevention of diphtheria, Prof. Löwenstein has tried combining the two substances in an ointment which is rubbed into the skin. After prolonged trials by Dr. Poindecker in a children's hospital, the ointment was found to give excellent results in 68 to 70 per cent. of cases, and accordingly it will now be used in all the municipal kindergartens. The parents will be handed a pamphlet with complete explanations, and it is expected that no difficulty will be experienced. The health authorities hope soon to eradicate by these means this dangerous disease at least amongst the youngest children. The ointment is rubbed in over the sternum in intervals of 8 to 14 days.

During the summer term of 1929 the number of medical students who proceeded to the M.D. degree was 126. Of these 63, or exactly half, were of foreign nationality, and it is clear that this high percentage of foreign students is of utmost importance to our University.

Dr. J. Rosmanit, who died recently, was a surgeon and physician of the old type, and though his work was never in the limelight it was none the less important. He was the inventor of the widely used railway first-aid apparatus, and served as the chief staff doctor of the Austrian State railways. During the war he contributed many useful suggestions concerning the methods of transport of the wounded and sick.

[1] See THE LANCET, August 24th, p. 404, and Sept. 21st, p. 617.

Correspondence.

"Audi alteram partem."

THE MEDICAL AND DENTAL REGISTERS.

To the Editor of THE LANCET.

SIR,—In order to facilitate the work of those who find it essential to know whether a practitioner is legally qualified or not—such, for instance, as officials of insurance committees, chemists and druggists—the Council are continuing to publish an office edition of the Medical Register. This edition is bound in paper boards and contains all names and addresses as they appear in the official edition but is printed on cheaper paper and without the preliminary matter. The office edition is published at the special rate of 7*s.* 6*d.* post free, but no copies can be issued at this price unless they are ordered and paid for prior to Dec. 31st of the year preceding that of publication. Order forms will be sent on request. The Council also issue each month lists of new registrations and names deleted from the Register. These are issued on a written understanding that the lists are for the personal use of the firm to which they are supplied, that they are not communicated to any other person, and that they are not sent out from the office in order to have stencils made. Every possible care is taken to protect subscribers from the lists being made use of by others. I might add that these lists are for obvious reasons not supplied to any addressing agency; the Council has no business arrangement or agreement of any kind with any addressing agency for supplying to them any official information and it certainly has no exclusive arrangement of this kind.

Similarly the Dental Board of the United Kingdom issue an office edition of the Dentists Register which includes the names of all registered dentists together with a local list. The price of this is 4*s.* post free, provided copies are ordered and paid for prior to Dec. 31st of the year preceding that of publication. Monthly lists of new registrations and deletions are also issued by the Board. I might add that the General Medical Council and the Dental Board are always glad to answer inquiries as to whether practitioners are registered or not. Preferably these should be in writing to prevent misunderstanding but inquiries by telephone are replied to at once.

I am, Sir, yours faithfully,

NORMAN C. KING,
Registrar.

General Council of Medical Education and Registration of the United Kingdom, 44, Hallam-street, London, W. 1, Dec. 4th, 1929.

THE CRAFT OF SURGERY.

To the Editor of THE LANCET.

SIR,—Prof. Tonks touches upon a subject which I have repeatedly emphasised in discussions on hospital training. He very rightly points out that the dental branch of surgery is the only one in which any attempt is made to instil craftsmanship in the student, and that this teaching is of great value is well demonstrated in those hospitals where there are combined medical and dental schools. It is common knowledge in such hospitals that when dental surgeons pass into the wards to complete their medical training they usually make good dressers, and not infrequently upon completion of their training secure surgical appointments. That the value of craftsmanship is not sufficiently appreciated by the examining bodies is shown by the recent dental curriculum of the London University degree in dental surgery, where the standard of prosthetic dentistry is lower than that of the L.D.S., whereas the standard of the more academic subjects is considerably higher.

This gradual tendency to exclude the teaching of craft in favour of more theoretical subjects is certainly distressing, and in my opinion a course of craftsmanship should be made compulsory with students intending to take a higher course in surgery. As Prof. Tonks emphasises, the capable surgeon is usually made, not born, and unless an apprenticeship is served in the use of the hands and tools one cannot expect students to attain that dexterity and skill in operating which is so necessary and vital to their success. It is sometimes almost a painful sight to watch a young surgeon using a saw or chisel, being obviously unfamiliar with the tool, and there is no doubt that a little more teaching of the fundamental use of instruments would increase his confidence and skill, to the great help of both himself and his patient.

I am, Sir, yours faithfully,

W. KELSEY FRY, M.R.C.S., L.D.S.

St. Thomas's-street, S.E., Dec. 4th, 1929.

THE POSITION OF PUBLIC VACCINATORS.

To the Editor of THE LANCET.

SIR,—On behalf of the Councils of the Poor-law Medical Officers' Association, and the Public Vaccinators' Association, I am desired to appeal, through your columns, to all public vaccinators and Poor-law medical officers, who are also members of the local authority to which they will be transferred on April 1st next, to communicate with me at once, if they have not already done so, giving such particulars as may be useful in framing representations to the central authority on their behalf.

I am, Sir, yours faithfully,

ALBERT ERNEST COPE, M.D.,
President of the Public Vaccinators' Association; Secretary of the Poor-law Medical Officers' Association.

Belgrave-road, Westminster, S.W., Dec. 7th, 1929.

CLINICS FOR RHEUMATIC CHILDREN.

To the Editor of THE LANCET.

SIR,—Dr. Burnet's plea for the establishment of special clinics for the supervision of rheumatic children needs no endorsement from me, but I may perhaps be allowed to say that his ideals are by no means as "premature" as he seems to think. There are already about a dozen such clinics at work in the London area, and many more scattered in the big cities of England and Scotland, and at least one in Ireland. I do not attempt to enumerate them lest I should leave out some unknown to me. Only last month did I hear of a new one to be opened shortly at Hull: and so the good work spreads. In many instances these clinics have adopted the plan which I think is best—namely, they are attached to a children's hospital, using its personnel and premises, and having ready access to every in- and out-patient department.

I concur with Dr. Burnet that these clinics should incorporate the word "rheumatism" in their title, and regard this as of great importance to the preventive aspect of the work. In London many of the clinics are called "rheumatism supervisory centres."

I have sometimes been betrayed into passing criticisms on the school medical service, but this rôle I see I can advantageously leave to Dr. Burnet. Perhaps, were its work boomed a little less vigorously, he would see that it does not cover the ground he expects of it. Official inspections at very long intervals are not going to do the work of careful and frequent examinations, and they are quite insufficient to pick out all early cases of rheumatism. There is, I am told, a schedule of disorders on which the school medical officer works, to the detriment of the child who has not the civic sense to ail *à la carte*, and I doubt if we are right in expecting him to come to real grips with the intricacies of clinical medicine. But I cannot in fairness close without testifying to the great value of the special schools for physically defective children, where many heart cases do phenomenally well. For myself I would say that the best régime in the long run for rheumatic children with heart

disease is to live at home, attend a school for physical defectives, and be periodically examined at a centre at a children's hospital.

I am, Sir, yours faithfully,

REGINALD MILLER, M.D., F.R.C.P.

Harley-street, W., Dec. 7th, 1929.

To the Editor of THE LANCET.

SIR,—As a comment on Dr. Burnet's letter, I may perhaps be allowed to furnish a short account of our experience in Bristol. It is about six years since our colleagues in the school medical service began to refer to Dr. C. E. K. Herapath and myself selected cases of doubtful or early cardiac disease discovered in the course of their routine medical inspections. These children we saw in our out-patient rooms and then reported as to their fitness to attend school, need for treatment, and so on. Between two and three years ago this plan was stabilised and extended by agreement between the various local authorities concerned on the one hand and certain hospital physicians on the other—a step which was promoted by the Cardiac Subcommittee of the Science Committee of the British Medical Association and assisted by the Medical Research Council—and since that time it has operated smoothly over an area of three counties.

We trust that this work will afford a basis of data broad enough for conclusions as to means of prevention of rheumatic carditis, while at the same time we are convinced that good is already being done in bringing these children under medical care earlier, and over longer periods, than formerly. We think, moreover, that we have gained valuable experience in harmonious coöperation with our colleagues—those of the whole-time services on the one hand, and the family practitioners on the other. It would be foolish to pretend that no difficulties have arisen, but so far it has proved possible, by relying on the goodwill of everyone concerned, to overcome all these.

Valuable work of the same kind is also being done in London, Birmingham, Glasgow, and elsewhere. Those who are interested in tracing the progress of the whole movement will find some account of it in recent annual reports by the chief medical officer to the Board of Education.

I am, Sir, yours faithfully,

CAREY F. COOMBS.

University Centre of Cardiac Research, General Hospital, Bristol, Dec. 9th, 1929.

THE ACUTE VULVITIS OF LITTLE GIRLS.

IS IT GONORRHŒAL?

To the Editor of THE LANCET.

SIR,—In the contribution by Dr. H. C. Cameron in your issue of Nov. 23rd (p. 1115) several questions are raised which I feel require an answer. Dr. Cameron suggests that acute vulvitis in children may not be caused by the diplococcus found in adult infections. The following analysis, in my view, strongly supports the general belief that the organism in the two conditions is identical.

Among 47 consecutive cases of gonococcal vulvo-vaginitis in children (bacteriologically confirmed) treated at the V.D. clinic of Guy's Hospital, the infection in 20 cases (42·5 per cent.) was found to be present in one or other parent, although in some of the cases the parents denied symptoms. In one case, transferred from a ward where there was an epidemic of vulvo-vaginitis, no evidence of infection could be found in the parents. In 26 cases (54·5 per cent.) the examination of parents was either impossible or bacteriological reports were inconclusive, although clinical examination revealed extremely suspicious evidence. Among these 26 cases four were associated with the epidemic already mentioned.

Whilst presenting these figures I do not for a moment deny the well-known fact that organisms other than the gonococcus—for example, *B. coli*, the streptococcus, *Micrococcus catarrhalis*, &c.—are frequently the cause of vaginal discharge in children and adults. Such cases after thorough investigation are discharged from the V.D. clinic as not venereal.

Dr. Cameron suggests that the epidemic is kept up by the anxiety of those concerned in combating it and dies down only when their activities cease from exhaustion. I maintain that it is arrested by the isolation and treatment of affected cases and the strict enforcement of rules. Since improved preventive regulations have been carried out there has been no spread of gonococcal vulvo-vaginitis in the wards of Guy's Hospital.

The assumption that only local treatment is given by medical officers in charge of V.D. clinics is not justified. The general condition of children suffering from gonococcal vulvo-vaginitis is not ignored in these clinics and measures designed to promote the general health are taken. In these cases the children generally show marked improvement in general condition and when judiciously handled do not show signs of nervous upset.

At the Children's Home, Waddon, where there are 37 beds for venereal disease, marked improvement in general health and gain in weight is the general rule, although local treatment is carried out daily in almost every case. Many cases of apparent recovery, under general and local treatment, are still found to be positive to bacteriological tests, sometimes months after all symptoms have disappeared. Also contacts with no symptoms are frequently found to be infected. These cases I consider to be carriers, comparable to those apparently well after general treatment only. It would be important to know the incidence of untraced infections due to this type of case. As to the question of ophthalmia, does Dr. Cameron consider it a common occurrence in adults? I confess to have seen a case in adult or child only very rarely, excluding, of course, ophthalmia neonatorum.

I consider that gonococcal infection in children is not the trivial condition which Dr. Cameron appears to imply, and that general treatment only is insufficient to effect a cure.

I am, Sir, yours faithfully,

MORNA RAWLINS.

Devonshire-place, W., Dec. 5th, 1929.

SUGAR IN ASTHMA.

To the Editor of THE LANCET.

SIR,—In his interesting article last week (p. 1187) on Asthma in Children Dr. A. A. Osman says that as far as his experience goes "sugar is without value in the treatment of asthma in adults." May I say that only last summer a gentleman, aged 70, whom I have known many years told me that he was recently cured of asthma by eating honey for a short time, especially from the lime tree.

I am, Sir, yours faithfully,

R. HENSLOWE WELLINGTON.

London, Dec. 9th, 1929.

SHEFFIELD HOSPITALS.—According to the 131st annual report of Sheffield Royal Infirmary 6810 in-patients were treated to a conclusion, an increase of 573; they cost £2 4*s.* 1*d.* per week. The pressure upon the out-patient department may be gauged by the fact that 27,355 persons were treated in the casualty department section. A new block is being provided which will contain casualty, massage, dermatological, and dental departments, an accident theatre, pathological, physiological, and biochemical laboratories. Last year marked the completion of 50 years' work of the Jessop Hospital for Women. The average stay of maternity patients was a small fraction in excess of 12 days; the puerperal sepsis patients, on the other hand, remained for an average of 23 days. In the absence of the money needed to provide research laboratories, especially for puerperal sepsis, it was hoped to convert some existing rooms for this purpose.

Obituary.

PHILIP HEDGELAND ROSS.

THE many friends of the late Dr. P. H. Ross who have heard with regret of his passing, will agree with the writer, who knew him nigh on 30 years, that the brief notices of his death announced in the newspapers in England, East Africa, and possibly in New Zealand cannot be deemed sufficient. The good work done by Ross, notably during the years he was in East Africa, whence the writer has but recently returned, deserves to be chronicled.

Ross was born in Christchurch, New Zealand, on July 4th, 1876. He was educated at Christchurch, Otago University, and at St. Bartholomew's Hospital, London. He became qualified in England M.R.C.S. Eng. and L.R.C.P. Lond., 1900; D.P.H. Cambridge, 1902. He held the Certificate of the London School of Tropical Medicine and won the Cragg's Research Prize, 1905. He gained the distinction of being elected Foreign Corresponding Member of the Société de Pathologie Exotique, Paris.

His research work dealt with the transmission of trypanosomiasis by various species of *Glossina* and of African relapsing fever by *Ornithodorus moubata*. Ross and Milne were the first to record human spirochætosis in Uganda. Ross was the first to discover the occurrence of piroplasmosis in monkeys (*Cercopithecus*), he described the parasites accurately, but did not figure them, he gave temperature charts, &c., of the infected monkeys which came from the Kikuyu District, Kenya. [Nuttall (Parasitology, 1908, i., 139), who studied Ross's preparations, gives the name of the species as *Piroplasma pitheci*. P. H. Ross, 1905, finding that its development in the peripheral blood (illustrated) is similar to that of *P. canis*, *P. bovis*, &c.]

His official work related less to research than to practical issues. In 1903 he was appointed to the East African Medical Service, and soon after became Government Bacteriologist to the East Africa and Uganda Protectorates, doing highly efficient work at Nairobi which led to his being made the first Director of Laboratories in East Africa. During the outbreak of plague in Nairobi in 1905 his services were so highly appreciated that he received the personal thanks of the Secretary of State. In March, 1916, he became Honorary Adviser to the Director of Medical Services in East Africa and undertook all the laboratory work for the Military Hospitals in Nairobi. Here he did great service in combating bacterial dysentery, being assisted by Dr. Kauntze; the death-rate due to this disease had been 40 per cent. After much work he prepared a carbolised polyvalent vaccine (from untreated cultures) which caused the death-rate to fall quickly to less than 5 per cent.

He wrote on June 25th, 1917, to his late mother: "We started trying it on Sept. 1st, and the first three months' results were so good that Kauntze suggested trying to inoculate the healthy carriers (of Carrier Corps) to stop them getting dysentery. It meant a fearsome amount of work, as Pillay [his Indian assistant] and I were then alone, and had seven hospitals to work (about a thousand examinations a month) and vaccine lymph to prepare and issue at the rate of 1,800,000 doses per year. But I just managed to keep the carriers supplied, though it was a very close thing. I had cabled the Crown Agents for material essential for making of culture broths, and there was delay in getting it. I borrowed from the vets., got the D.M.G. to send me material from German East Africa, and the Governor to borrow all that the Uganda Government possessed, and was down to the last bottle when a parcel-post arrived with 20 pounds worth. So now I am turning the stuff out by the bucketful and have at last persuaded the medical authorities at Dar-es-Salaam to give it a trial in their hospitals. . . . It [the vaccine] is certainly a good thing for treatment, and I hope will prove equally effective as a prophylactic. When I can get figures from the military they will prove or disprove its utility. I got the doctor of the King's African Rifles to do 7000 inoculations in a camp where they were badly troubled with dysentery, and he had only three cases afterwards, of whom one was found to have escaped inoculation."

Owing to failing health he was invalided out of the East African Service, and in April, 1919, with his wife and son returned to Christchurch, N.Z. He came again to England in June, 1926. He died unexpectedly of pancreatitis on August 6th, 1929, at Sherborne, after but a day's illness. He left a widow and one son, now a student at Corpus Christi College, Cambridge.

The following is a list of Ross's published papers:—

Ross, P. H., and Milne, A. D.: Tick Fever, Brit. Med. Jour., 1904, ii., 1453. Ross: A Note on the Natural Occurrence of Piroplasmosis in the Monkey, Jour. Hygiene, 1905, v., 18–23. Ross and Hodges, A. D. P.: Notes on a Case of Spirillum Fever in Uganda, Brit Med. Jour., 1905, i., 713–15. Ross: Tick Fever, Jour. Trop. Med., 1906, i., 65–69. Report on Experiments to Ascertain the Ability of Tsetse-flies to Convey *Trypanosoma gambiense*, &c., Roy. Soc. Rep. Sleeping Sickness Commission, 1907, viii., 80–85. Article Tick Fever in Allbutt's System of Medicine, 1907, ii., pt. 2., pp. 301–306. Some Experiments with Vaccine prepared according to the Method of Achalme and Marie Phisalix, Bull. Soc. Pathol. Exot., 1911, iv., 283–86. Spirillosis, Nairobi Laboratory Reports, 1911, pp. 6–12. Human Spirochætosis: syn. African Relapsing Fever, Human Tick Fever, Transvaal Med. Jour., 1911–12, vii., 125–29. Poisonous Insects of South Africa, New Zealand Med. Jour., 1912–13, xi., 176–91. A Further Experiment with Vaccine, prepared according to the Method of Achalme-Phisalix, Bull. Soc. Path. Exot., 1913, vi., 144. Ross and Shircore, J. O., Epidemic Cerebro-spinal Meningitis in Nairobi, British East Africa, Trans. Soc. Trop. Med. and Hyg., 1913–14, vii., 83–95. Ross, Gózony, L., and Hindle, E.: Serological Tests. I. On the Persistence of Precipitins in Sera Stored in Vitrol II. On the Reaction obtained with (*a*) Complement-fixation Tests, and (*b*) Precipitin Tests, with the Gut Contents of Blood-sucking Arthropods, Jour. Hygiene, 1914, xiv., 354–59. Ross: Dermatitis due to the Secretion of a Beetle in British East Africa, Jour. Trop. Med. and Hyg., 1916, xix., 202. Ross and Kauntze, W. H.: The Use of Polyvalent Vaccine in Dysentery, THE LANCET, 1917, i., 965. Ross: Some Observations on Malaria and Helminthiasis in Central Kavirondo Reserve adjoining Kisumu, Kenya and East Africa Med. Jour., 1929, v. 367–74.

The published work affords but slight evidence of Ross's industry and efficiency, since most of his time in Africa was occupied in the routine work of preparing vaccines for plague and dysentery on an extensive scale in connexion with epidemics and in dealing with numerous practical problems.

All who knew Philip Ross will recall his genial personality, his never-failing interest in helping others over difficulties, and the devotion he showed to the work in his domain. In East Africa he gave devoted service to mankind.

G. H. F. N.

JOHN SCOTT RIDDELL, M.V.O., O.B.E., M.B., LL.D. ABERD.

Mr. Scott Riddell, who died on Dec. 5th at the age of 65, was one of the best-known surgeons of his generation in the north of Scotland. Some years ago he retired from active practice, but his time was very much occupied by public duties. He was General Council Assessor on the Aberdeen University Court, University representative on the City of Aberdeen Territorial Association, and chairman of the Joint (Disablement) Committee of the North of Scotland under the Ministry of Pensions. He also served for some years as chairman of the Managers of the Royal Infirmary. He had the temperament that made these duties a pleasure and, when a man was needed for such a position, his name always sprang to the lips. In his latter years he had to fight against a chronic disablement, but this never affected the liveliness of his interest, the readiness of his activity in public causes, or the quality of his advice in council.

In the real sense a man of action, Riddell's capacity for action was broadly based in sound scholarship both general and professional. After a long apprenticeship in classics he graduated in medicine in 1888, and soon showed a strong disposition to surgery. For seven years he acted as assistant professor of surgery when Sir Alexander Ogston was the professor. To those that began their surgery

under Ogston the thoroughness of the discipline implied by those seven years needs no comment, and Riddell profited to the full by the association. He became not merely a good teacher but a skilled diagnostician and operator. He passed on to the staff of the Royal Infirmary and, in due course, became one of the consultant surgeons. His enthusiasm and lucidity in exposition made him a first-class clinical teacher and he developed a very large operative practice. He was a breezy, active, eloquent man and whatever he took up was sure to succeed. He was ready to argue and discuss with forcefulness, but always in good temper. In a word, he was a general favourite wherever he went and the professional men knew that his work was reliable. In his early days, and for many years, he conducted classes in ambulance work. His Manual of Ambulance ran into many editions and became a standard text-book in the North-East. He had the qualities of a leader and took his full share in work outside the profession. He was a member of the Council of the British Red Cross Society (Scottish Branch). He was Red Cross Commissioner for the North-Eastern District of Scotland. He became Major and Commanding Officer of the R.A.M.C. (Volunteers) and later Lieutenant-Colonel. He was Colonel and administrative medical officer of the Highland Division, Territorial Force, from 1908 to 1912. In these posts he was full of energy and stimulus and knew no fatigue. He took a full part in the appropriate surgical work incidental to the war and was made O.B.E.

A colleague writes: "Riddell was a fighter and could take a very strong stand on matters of professional administration. When the movement for the coördination of hospitals began in Aberdeen he nailed his colours to the 'voluntary' mast and showed all the good qualities of a 'die-hard.' In the end he changed his point of view and fell in cordially with the new developments. It was always a pleasure to discuss affairs with him even when he was on the opposite side. There was no sullenness of antagonism and no unreadiness to admit the justice of another standpoint. It was a pleasure to walk and talk with him and to hear his full-blooded and rapid opinions de omnibus rebus; but not least on surgery, which began with him as a passion and so remained. Like his great master, Ogston, he filled his students with enthusiasm, and each of them will with a full heart place a stone on his cairn. He was a native of Aberdeen and an out-and-out Aberdonian, but he had a bright way with him and the absolute self-confidence that marks the good surgeon and the military leader."

Mr. Riddell did a great deal to maintain the high standard of teaching both in the University and in the Royal Infirmary. His long and varied experience gave great weight to his opinions and his eloquent way both in speech and in writing secured a ready audience all over the North-East. The new Medical School and the new Royal Infirmary of Aberdeen owe, indirectly, not a little to Riddell's forceful personality.

THOMAS FINLAYSON DEWAR, C.B., M.D. ABERD., D.SC. EDIN.

Dr. T. F. Dewar's death on Nov. 27th removes a man of exceptional attainments. A native of Arbroath, in Angus, he graduated before he was old enough to register, and then joined in his father's practice for some 12 years. The Dewar family of practitioners—father and two sons—was very well known in the East of Scotland. To his medical degrees he added the D.Sc. in public health, and when the medical officership of Angus fell vacant he was appointed to fill it. A little later he succeeded Dr. Nasmyth as county medical officer of Fife and Kinross, and it was his work in Fife that first attracted attention to his high quality. He had an instinctive capacity for organisation and administrative work. He kept the public health and the school medical service at a high level and, when in 1910 a second medical inspector was wanted for the Local Government Board of Scotland, Dewar was offered the appointment and accepted it. From that time till his death he was a member of the Civil Service. In this post as an officer of the medical staff he showed the same eager exactness in his work and the same unsleeping devotion to duty. He soon came to know the whole staff personally, and he became their natural consultant in medicine and other affairs.

From early manhood he was an active member of the Fifeshire Yeomanry, and in the South African War he became Surgeon-Captain in the Imperial Yeomanry, receiving the Queen's medal with four clasps. He published a volume "With the Scottish Yeomanry, 1901," and as a result of his South African experience he also produced a volume on "Sanitation of Armies in the Field." When the late war broke out he became an officer in the Territorials and was called up with the First Army. In 1916, he was D.A.D.M.S. of the 51st Division, and from April, 1916, to January, 1917, he was A.D.M.S. of the Northern Army, being mentioned in dispatches four times. He received the C.B. (Military Division) in 1918. For a period he had charge of the troops at Bedford, and his report on the outbreak of measles among the Highland regiments was an excellent piece of work.

When Dewar in 1918 returned to his civil work at the Local Government Board he was placed in charge of the venereal diseases section and the medical work of the poor-law; but his all-round ability led to his being entrusted with many difficult special inquiries. When the Board was superseded by the Scottish Board of Health, Dewar continued on the same general lines of work, but his time was devoted largely to nursing and developing the venereal disease clinics. A member of Lord Salvesen's Committee on maternal mortality, he made this subject also very intimately his own, but for the last few years he had specialised in venereal diseases and the medical service under the poor-law. His special chapter on venereal diseases in one of the annual reports of the Scottish Board of Health was afterwards published as a separate pamphlet and was an exceptionally useful piece of work.

A colleague writes thus of Dr. Dewar's methods: "Whenever he took up a new subject he went straight to the best authorities; he spent time in the laboratories mastering the technique involved and, when consulted, he could be relied upon to give with precision the essence of the latest work. Many years ago he deliberately elaborated a method of recording and filing both information and reports, and unlike most people he not only created the system but kept rigidly to it even at the expense of his health and strength. His system became an objective code of duty, and it is hardly too much to say that every half hour of his day was noted in his diary for three months in advance and the programme was rigidly adhered to. . . . A man of chivalrous nature, he was highly strung, keenly sensitive to every social influence, alert and full of a witty humour, and his graciousness was a proverb with those that knew him intimately. One of his juniors rightly called him 'one of the aristocrats of the profession,' and while he was conscious of his value and his power, he was the most modest of men."

Dr. Dewar was 63 years of age. He was an accomplished writer, and his long series of Medical Vignettes to the *Caledonian Medical Journal* contain some admirable descriptions of war in the field.

JAMES GILLON ROSS, M.B. EDIN.

Dr. J. G. Ross, who died at Whitby on Nov. 29th, was the son of the late Mr. Gilbert Grange Ross of Thurso and was born in Calcutta 59 years ago. He received his early education in Switzerland and Germany, and later at University College School, London, where he distinguished himself as a cricketer. At Edinburgh University he became secretary of the Athletic Club and was notably successful in various

forms of sport, especially running and swimming. The Queen's Edinburgh Rifles found in him a keen member, and after graduating as M.B. in 1897 he joined the Volunteer Medical Staff Corps. On leaving Edinburgh he became house surgeon at the Nottingham General Dispensary, and served for two years in Northern Nigeria in the West African Frontier Force. In 1902 he went to Whitby as assistant to the late Dr. John Wilson, and shortly afterwards entered into partnership, which he subsequently shared with the late Dr. W. H. Wilson, Dr. John Wilson's son. When the partnership was dissolved he remained in Whitby, and carried on the practice on his own account for about twenty-three years. At the time of his death he was medical officer of health for the Whitby urban district council, and had the child welfare centre under his care. A man of wide interests, he was always eager to learn of the latest methods for combating disease, and he did excellent work as instructor in ambulance work and first aid. A prominent Freemason and this year's president of the Whitby Rotary Club he was held in high esteem by his fellow townsmen. Dr. Ross saw service in the late war first with a Yorkshire Battalion and later on the staff of the Tigue Hospital at Malta. He married in 1902 Elizabeth, daughter of the Rev. George Dodds, and she survives him with a daughter and two sons, one of whom is a medical student at Leeds. His brother is Dr. Donald Ross of Lochgilphead.

BRITISH COLLEGE OF OBSTETRICIANS AND GYNÆCOLOGISTS.

THE FIRST GENERAL MEETING.

THE first general meeting of the Fellows and Members of the British College of Obstetricians and Gynæcologists was held in London on Dec. 3rd and was largely attended. The President, Prof. W. Blair Bell, was in the chair, and in proposing the adoption of the report of council and the balance sheet, pointed out that the College was only incorporated as lately as Sept. 13th last. Consequently the report was brief, and the balance sheet represented for the most part the financial arrangements prior to incorporation. While registration receipts for fellowship and membership and the annual subscriptions might be sufficient to keep the College going as at present conducted, they would be quite inadequate to liquidate the expenses of a College building, or to provide the funds from which a suitable home could be purchased and furnished. The treasurer hoped, therefore, to establish three funds—an endowment fund (not less than £100,000), a house and furnishing fund (£30,000), and a fund to wipe out the liabilities in connexion with the incorporation and pre-incorporation expenses (£1600). Lord Riddell had generously given £1000 for general purposes, and other sums and benefactions had been promised. The President gave a brief sketch of the constitution of the College and of its aims. Incorporation, without the use of the appendage "Limited," was the present legal status of the College, and this gave certain financial advantages in regard to trusts and other matters. The present state was to be regarded as a stage only in progress towards the dignity of a Royal Charter, for the attainment of which the College must prove its worth to the State.

It was proposed to elect as Foundation Fellows of the College practically all of the senior obstetricians and gynæcologists in England, Scotland, Wales, Ireland, and the British Dominions; and as Foundation Members, who would subsequently become eligible for the Fellowship, the less senior obstetricians and gynæcologists. Already a majority of those approached in Great Britain and Ireland had joined; those resident in the British Dominions had not yet been invited. It was intended to elect as fellows and members only those engaged exclusively in obstetrics and gynæcology, though a certain latitude would be allowed, for example, in regard to those engaged in the public health service. The College hoped to discuss with the Royal College of Physicians of London and the Royal College of Surgeons of England the details of the granting of a diploma in obstetrics and gynæcology, for the drafting of the regulations for which a committee of the College had been sitting.

Affairs of State had already claimed their attention. The services of the College would be placed at the disposal of the Government, which intended to take action in regard to maternity problems, and had asked for assistance and advice from the College. On a matter of domestic policy, the President said that the personnel of the College, its council and officers had necessarily been elected by the original preliminary committee; but within the next few months the present officials would voluntarily resign and would offer themselves along with others duly nominated for re-election by vote of fellows and members. If the College was to make good and to justify its existence, it would need the active support, based on real interest in its endeavours, of every obstetrician and gynæcologist.

The President read to the meeting the oath of membership:—

> I solemnly affirm that I will at all times maintain the welfare and dignity of the College, faithfully obeying in the spirit as well as in the letter the Articles and Regulations, and submitting myself to the lawful authority of the Council. Furthermore, I pledge myself in the practice of the Art of Obstetrics and Gynæcology ever to have regard to the honour of the College and to the welfare of the State.

These words, he said, expressed the ideals of loyalty, progress, and service which inspired their organisation.

THE GENERAL HOSPITAL, BIRMINGHAM.

SESQUI-CENTENARY CELEBRATION.

THE General Hospital at Birmingham was founded in the year 1779 by the single-minded effort of a local physician, Dr. John Ash, F.R.S., whose memory was honoured on Dec. 10th at a notable gathering which included a midday celebration in the Cathedral, an afternoon assembly at the Hospital with orations by Prof. K. F. Wenckebach of Vienna and Lord Moynihan of Leeds, and an evening banquet at which more than 450 patrons, friends, and officers of the hospital were present. For the benefit of guests and others the story of the hospital was told in a Retrospect prepared by the senior consulting surgeon, Sir Gilbert Barling, pro-Chancellor of the University, himself unfortunately prevented by ill-health from attending. His story is a lively and worthy record of the growth of a city's care for its sick poor, side by side with the training of students and nurses and the advancement of medical science, towards their ultimate fusion in the scheme soon to be set on foot for a new hospital at Edgbaston, attached to the University, with every facility for teaching and research—the Golden Age of Medicine, as Sir Gilbert happily phrases it.

In his oration to the assembly Prof. Wenckebach discoursed on the use of the fox-glove by the bedside, with a generous recognition of the pioneer work of Dr. William Withering, a contemporary of Ash. Lord Moynihan told the story of surgery through the ages, recalling that Neolithic man suffered from spinal caries and the present-day Birmingham citizen still ran the same risk by refusing to boil his milk.

The Banquet.

At the banquet, which was a model of smooth organisation, the guests were received by the President of the hospital, Alderman A. H. James, J.P. The toast of The City was proposed by Lord Moynihan, who spoke of the medical men who had "made" the city: Lawson Tait with a leonine

personality and the heart of a child; Furneaux Jordan, Jordan Lloyd ("almost a magician"), Sampson Gamgee, blessed alike to surgeon and patient for his introduction of dry dressings; Priestley Smith, dexterous and inventive; down to Gilbert Barling and Haslam. The Lord Mayor, Alderman M. L. Lancaster, J.P., in responding, expressed the hope that the voluntary hospitals would keep pace with the growth of the city and praised the work-people whose annual subscriptions now approached £150,000. Sir John Rose Bradford, in proposing The Birmingham General Hospital, spoke with great feeling of the particular place held by voluntary hospitals in the affection of the British people, and of their dependence on the gifts and devoted service of laymen for their success. Birmingham General Hospital had arisen at the same remarkable period which saw the foundation of the Royal Infirmary, Edinburgh, and five of the great teaching hospitals of London. The city was happy to have had men capable of appreciating the great purposes that medicine might be made to serve. Alderman James, in reply, admitted a period of suspended animation in the life of the Hospital in preparation for the big scheme ahead of them. The fact that more than one in four of the Birmingham population subscribed to the contributory fund was, he said, a lasting monument to the patriotism and vision of the work-people. Councillor Miss Bartleet, J.P., chairman of the board of management, also replied. Dr. Stanley Barnes, senior physician, who received an ovation on rising, proposed The Guests, and Prof. Wenckebach in response thanked for the good cheer and the good fellowship which he and all his fellow guests had enjoyed. A word should be added in praise of the admirable acoustic properties of the Grosvenor Room where the banquet was held.

AN OUTSIDE VIEW OF CONTRIBUTORY PENSIONS.

Dr. E. S. Moorhead, chairman of the welfare supervision board of the Winnipeg Health and Public Welfare Service, has recently been in this country studying the contributory pensions scheme, and has presented a report to his Board. He finds that the scheme is exceedingly popular in this country, and that many more people would like to be included within its scope. He draws attention to the fact that the machinery for collecting contributions was already in operation through the National Health Insurance Act. It is as easy to collect 1s. 6*d*. a week as 9*d*., and to attach two stamps to a card involves little more labour than attaching one. This gave the scheme a great advantage from its inception, and provided a smooth and successful working. The difficulty in the way of extending it to the whole of the country is just this difficulty, Dr. Moorhead thinks, of collecting the contributions. To throw the scheme open on a voluntary basis would be economically unsound, as the healthy young men would be unlikely to seek admission while the middle-aged man suffering from tuberculosis, heart disease, or other disability would immediately join, especially if he had a wife and young children dependent on him. It would also be economically impossible to send round public collectors to the small shop-keeper, the small farmer, the country blacksmith, and the poorly paid clergy, all of whom were anxious to be included in some form of contributory pensions scheme. At first Dr. Moorhead was puzzled on hearing that the premium for men was double that for women, seeing that women live longer and are less likely to be killed by industrial accidents or by exposure. It was explained to him, however, that most of a man's insurance really goes to provide pensions for his widow or children. If he dies without leaving either widow or child under the age of 14, his estate is not entitled to recover any sum from the Government. Women, on the other hand, cease contributions when they marry, unless they continue to work—which is estimated to happen once in seven cases. Dr. Moorhead is impressed with the fact that England gives the cheapest industrial insurance in the world, and is prepared to expend for the next 35 years or more an immense sum from State funds in order to put the plan on a sound basis. He feels that Manitoba will have to face the problem of a compulsory pensions scheme and that the difficulties, though great, are not likely to prove insuperable. Any scheme which is not contributory would prove, he thinks, an excessive burden on the tax-payer in a very short time.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

BILLS ADVANCED.

In the House of Lords on Dec. 3rd, the Poor-Law Bill, a consolidation measure, was recommitted in respect of an amendment made by the Joint Committee which considered the Bill. The amendment was agreed to and the Bill was reported with the amendment to the House. On Dec. 4th and 5th the Bill was agreed to on Report and read the third time. On Dec. 4th a Bill providing for the registration of chiropodists was read a first time. The Royal Assent was given by Commission on Dec. 6th to the Widows, Orphans and Old Age Contributory Pensions Act. On Dec. 5th in the House of Commons, Major ELLIOT'S measure The Education (Scotland) Bill was read a second time.

HOUSE OF COMMONS.

WEDNESDAY, DEC. 4TH.

Night Baking.

Mr. MANDER asked the Home Secretary whether the Government had now decided how to deal with the subject of night baking.—Mr. CLYNES replied: This subject will be dealt with in the Factories Bill.

Sale of Tuberculous Cows.

Dr. HASTINGS asked the Minister of Agriculture whether his department had issued any regulations to prevent the sale of a cow, shown by test to be suffering from tuberculosis, for the purpose of producing milk for sale to the public; and, if not, whether he would consider the adoption of some method, such as branding, so that the purchaser might at least know the condition of the animal he is buying.—Mr. BUXTON replied: The Tuberculosis Order of 1925 requires the notification, and provides for the slaughter, of cows shown to be giving tuberculous milk or excreting tubercle bacilli in other ways, and for the compensation of their owners. Reaction to the tuberculin test does not, however, by itself, bring animals within the scope of the Order as that is not sufficient evidence that they are giving tuberculous milk. I do not consider that the branding of reactors is necessary; intending purchasers can protect their herds by only buying cows which have passed the tuberculin test.

THURSDAY, DEC. 5TH.

Ex-Service Men and Rheumatism.

Mr. RAMSBOTHAM asked the Minister of Pensions how many ex-Service men had been granted pensions in respect of rheumatism; how many of these pensioners had died from rheumatism and heart affection; and in how many cases wives had been granted a pension in respect of their husbands' death.—Mr. F. O. ROBERTS replied: Awards have been made since 1914 in respect of rheumatism to some 84,700 officers and men. The information asked for in the second and third parts of the question is, I regret, not available.

Vaccination and Nervous Diseases.

Mr. GROVES asked the Minister of Health how many of the cases of nervous disease following within a month of vaccination were vaccinated with Government lymph and how many with other lymph; and whether his department had any reason to suppose that complications had attended the use of foreign lymph more frequently than the use of Government lymph.—Mr. GREENWOOD replied: Of the total number of cases of the kind referred to which have been brought to the notice of my department since 1922, 148 were vaccinated with Government lymph and 37 with other lymph. I have no information as to the lymph used in the remaining 8 cases. With regard to the second part of the question, no information is available as to the extent to which lymph, other than Government lymph, is used in this country and no conclusions can, therefore, be drawn as to the comparative likelihood of complications following the use of Government lymph, and lymph supplied from private sources, respectively.

Prevention of Contagious Abortion in Cattle.

Lieut.-Colonel FREMANTLE asked the Minister of Agriculture if his department issued and recommended the use of a live vaccine as the best preventive against contagious abortion in cattle; how long this had been in use; whether it had increased or reduced the incidence of the disease in cattle; and what steps he proposed to take to ensure the adoption of every measure for the reduction of this pest.—Dr. ADDISON (Parliamentary Secretary to the Ministry of Agriculture) replied: In herds in which the percentage of

infection of contagious abortion is not high, the Ministry recommends that the disease should be controlled by hygienic measures and the agglutination test for the detection of infected animals. In herds in which infection is heavy, the Ministry advises the immunisation of all non-pregnant animals with the live vaccine. This vaccine has been issued from the Ministry's Laboratory since 1912, and the demand for it indicates that it is serving a useful purpose. The disease does not lend itself to legislative control, and therefore my right hon. friend intends to encourage and assist research workers to concentrate on the discovery of better methods of immunising cattle against the disease.

Milk Service in Schools.

Viscount LYMINGTON asked the President of the Board of Education the number of schools having milk clubs, together with the number of school-children receiving milk under the National Milk Publicity Council's scheme for milk service in schools.—Sir CHARLES TREVELYAN replied: I regret that I am unable to give the noble lord the particulars for which he asks, but I understand that partly as a result of the activities of the National Milk Publicity Council there has, in the past few years, been a considerable extension of these arrangements for supplying milk to children in the schools. Among other places, comprehensive arrangements are in operation at Birmingham and Leeds.

District Medical Officers and Health Committees.

Mr. HACKING asked the Minister of Health whether he would take steps to prevent members of town councils who were also district medical officers under boards of guardians allowing their names to be included on the health committees of boroughs for 1930, when such health committees would be the public assistance committees of the boroughs in which these persons acted as district medical officers; and whether such persons would be prevented from taking part in the arrangements for the setting up of public assistance committees when they were actually paid servants of the Ministry of Health.—Mr. GREENWOOD replied: As the law stands, district medical officers under the poor-law who will be transferred to county councils and the councils of county boroughs under the Local Government Act, 1929, will be automatically disqualified from membership of the council or a committee of the council to whom they are transferred. District medical officers are employed and paid by the boards of guardians and not by my department.

Pauper Lunatics.

Major GLYN asked the Minister of Health the total number of pauper lunatics cared for by the poor-law authorities, and at what cost; what was the number accommodated at the expense of the asylum authorities; what was the number maintained at the expense of the Lunacy Acts. Board of guardians recover part of the cost of maintenance from friends and relatives of the patient. The powers and duties of the Board of Control in the case of patients on out-door relief are limited to obtaining a return from the poor-law authorities, and, in the case of lunatics in poor-law institutions, to paying periodical visits. As regards patients detained in county and borough mental hospitals, the Board of Control examine the documents upon which they are received and detained, and also consider periodical medical reports. They also visit the institutions and have general supervision over the arrangements for the proper care of the patients.

TABLE B.

—	Financial year ending March 31st.			
	1910.	1920.	1925.	1929.
	£	£	£	£
Maintenance ..	2,619,073	5,305,008	6,510,639	6,938,235
Building and repairs ..	417,211	453,288	764,822	999,417
Land purchased	7,328	36,964	39,609	36,597
Land rented ..	4,878	5,536	6,843	7,008
Total ..	3,048,490	5,800,796	7,321,913	7,981,257

Inspection of Dairy Farms.

Lieut.-Colonel FREMANTLE asked the Minister of Health how many inspectors were employed by his department in inspection of dairy farms; and how many of the inspectors were qualified veterinary surgeons.—Mr. GREENWOOD replied: Two inspectors are employed by my department in the inspection of dairy farms, and neither of them is a qualified veterinary surgeon. I may add that the only farms inspected by officers of my department are those producing Certified and Grade A (tuberculin tested) milk, and that the examination and testing of cattle on these farms are carried out by qualified veterinary surgeons approved by the department.

MONDAY, DEC. 9TH.

Medical and Surgical Treatment of ex-Service Men.

Sir GEORGE BOWYER asked the Minister of Pensions whether he intended to take over all medical and surgica treatment of ex-Service men, providing, where necessary, full-time medical officers for the purpose.—Mr. F. O. ROBERTS replied: My department has authority under the Royal Warrants to provide such treatment only as is not

TABLE A.—*England and Wales: Total Number of Pauper Lunatics on Jan. 1st in each of the Years Specified.*

Where maintained.	1910.			1920.			1925.			1929.		
	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.	M.	F.	Total.
In county and borough mental hospitals..	43,997	50,217	94,214	34,389	47,686	82,075	39,884	55,854	95,738	44,629	61,473	106,102
In licensed houses:												
Metropolitan ..	29	83	112	12	61	73	—	—	—	15	28	43
Provincial	3	—	3	161	311	472	—	—	—	—	—	—
In criminal lunatic asylum (Broadmoor)	1	—	1	2	—	2	3	—	3	2	—	2
In poor-law institutions:												
Ordinary poor-law institutions ..	5,143	6,281	11,424	4,271	6,330	10,601	4,718	6,644	11,362	4,666	6,513	11,179
Metropolitan district asylums	3,336	3,508	6,844	2,306	3,132	5,438	2,314	2,770	5,084	2,118	2,490	4,608
On outdoor relief ..	2,181	3,458	5,639	1,424	2,482	3,906	1,282	2,216	3,498	1,323	2,277	3,600
Total	54,690	63,547	118,237	42,565	60,002	102,567	48,201	67,484	115,685	52,753	72,781	125,534

N.B.—The cost of maintenance of all these patients was borne by boards of guardians, except that of certain patients in county and borough mental hospitals who were chargeable to county or borough rates as follows: 1910, 1,669; 1920, 1,160; 1925, 1,336; 1929, 1,400. M = males; F = females.

boards of guardians; what was the position of the board of control in regard to the care and supervision of these lunatics; and how these figures compared with 1925, 1920, and 1910.—Mr. GREENWOOD replied: Figures are not available in regard to all the points raised by the hon. and gallant Member, but Table A shows the total number of pauper lunatics in the four years mentioned, and indicates where they were maintained, while Table B shows the expenses incurred in connexion with public mental hospitals. The cost of maintenance falls upon boards of guardians, the remaining expenditure upon local authorities under the otherwise provided. I could not, therefore, adopt the course suggested by the hon. and gallant Member without duplicating other statutory arrangements for the provision of treatment which are in operation under the National Health Insurance Acts and other enactments.

Maternity Benefit.

Mr. KEDWARD asked the Minister of Health whether he was proposing to make any change in the method of granting maternity benefit; and whether any reduction in the present amount of £2 was being considered.—Miss LAWRENCE

(Parliamentary Secretary to the Ministry of Health) replied: The whole question of the arrangements for maternity benefit under the scheme of National Health Insurance is under consideration, but my right hon. friend is not yet in a position to say what alterations, if any, will be made.

Drinking Water-supply in Villages.

Mr. GRANVILLE asked the Minister of Health if he was prepared to consider area schemes for providing employment in the building of rural cottages and the provision of a system for the supply of drinking water in villages.—Miss LAWRENCE replied: My right hon. friend proposes to give special consideration to the question of rural housing in connexion with forthcoming legislation. As regards rural water-supplies, my right hon. friend will be prepared to consider any schemes, and I may point out that the Government have recently announced special terms of assistance as part of their unemployment proposals.

Indian Army Veterinary Corps.

Major GRAHAM POLE asked the Secretary of State for India how many Indians had been admitted to the commissioned ranks of the Indian Veterinary Corps since that arm of the Indian Army was opened to Indian gentlemen.—Mr. BENN replied: No Indian has yet been commissioned in the Indian Army for employment in the Indian Army Veterinary Corps, but one candidate has been selected and is now under training in this country for that purpose.

TUESDAY, DEC. 10TH.

Training and Employment of Midwives.

Viscountess ASTOR asked the Minister of Health whether it was intended to introduce legislation embodying the scheme outlined in a memorandum of the British Medical Association for a national maternity service for England and Wales, the findings of the Royal Commission on National Health Insurance, and the recommendations of the report of the departmental committee on the training and employment of midwives.—Miss LAWRENCE replied: My right hon. friend is not yet in a position to make a statement on this subject.

Registration of Mental Nurses.

Mr. REMER asked the Minister of Health if his attention had been called to the fact that mental nurses in possession of the Royal Medico-Psychological Association's certificates did not receive admission to the register kept under the Nurses' Registration Act, 1919; and would he issue an order to rectify this position.—Miss LAWRENCE replied: I would refer the hon. Member to the reply given him on Nov. 28th. My right hon. friend is not empowered to issue any order in this matter.

Death after Vaccination.

Mr. FREEMAN asked the Minister of Health whether his attention had been called to the case of Clarence Morris Martin, who died on Nov. 14th, having been vaccinated on Oct. 9th, and that the coroner reported the death was caused by septicæmia following the accidental breaking off of the vaccination scab; had he instituted inquiries into this case, and had he anything further to report.—Mr. GREENWOOD replied: My attention has been called to this case which occurred at Southampton, and inquiries have been made into the matter. The death took place on Nov. 10th, the cause of death certified by the coroner, after an inquest, being as stated in the question. I am satisfied that death was due to accidental infection of the site of the vaccination from some extraneous source, and that no blame attaches to the public vaccinator or to the lymph used.

BRISTOL HOSPITALS.—The 193rd annual report of the Bristol Royal Infirmary (380 beds) shows that last year 8082 patients were admitted to the wards, and that the out-patients numbered 66,319. Of the 1,397 maternity cases 810 were admitted, the others being attended to in their own homes. Of the total births in Bristol 21 per cent. received attention at the infirmary. Very satisfactory results are stated to have attended the work of the cancer research department, and the "Bristol Royal Infirmary lead treatment" has "gone all over the world."—At the Bristol General Hospital there is a new out-patients' department and a new children's ward and operating theatre are being provided. A new ward for the treatment of male accident and other surgical cases has been necessitated by the long waiting-list of surgical cases. The local poor-law hospitals have no vacant beds available for the overflow of surgical cases. The cardiac research centre has been busily engaged. During 1928, £9763 was paid by, or on behalf of, patients, but the adverse balance on ordinary expenditure account exceeded £12,000.

Medical News.

UNIVERSITY OF CAMBRIDGE.—On Dec. 6th the following degrees were conferred:—

M.D.—*W. L. Harnett, K. E. Harris, J. D. M. Stewart, and R. A. Hickling.

B.Chir.—W. E. Mashiter and C. G. Townsend.

* By proxy.

UNIVERSITY OF BRISTOL.—At recent examinations the following candidates were successful:—

M.D.

W. A. Gornall.

FINAL EXAMINATION FOR M.B., CH.B.

Part II.—*J. J. J. Giraldi, J. E. Newton, and N. C. Tanner. The following passed in groups which completed their examination: N. L. Price, N. D. Gerrish, and Mabel F. Porter. *In Group II. only*: R. M. Norman.

* With second-class honours.

Part I., including Forensic Medicine and Toxicology.—J. S. Adamson, T. A. Barnabas, J. E. Brown, H. L. Cleave, J. L. S. Coulter, C. J. N. Davis, F. W. A. Fosbery, L. R. Jordan, J. A. Kersley, R. H. Moore, Elizabeth S. G. Owen, C. N. Royal, and W. A. F. Taylor.

Part I.—L. P. Ashton.

FINAL EXAMINATION FOR L.D.S.

J. D. Galloway.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.—On Dec. 2nd the following were admitted Fellows of Faculty: Alfred Mackenzie Clark, Joshua Ferguson, William David Henderson Stevenson, and Rosie Swamikan.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—At the Annual Meeting of the College on Dec. 5th Sir Norman Walker was elected President, Dr. Robert A. Fleming was nominated Vice-President, and the following were elected Members of Council for the ensuing year: Dr. G. Lovell Gulland, Dr. John Orr, Dr. William Fordyce, Dr. Edwin Bramwell, and Dr. Fergus Hewat. At the Extraordinary Meeting which followed, Dr. John Orr and Dr. William Fordyce were elected Representatives of the College on the Board of Management of the Royal Infirmary of Edinburgh.

WEST LONDON HOSPITAL.—The annual report states that the 3628 in-patients in 1928 stayed on an average 20·57 days instead of the 21·75 days of the previous year, a shortening which enabled a larger number of patients to be received. They cost £3 8*s.* 7*d.* per week, an increase of 1*s.* 4*d.* There were 275,739 out-patient attendances; each patient cost 8*s.* 10*d.* A new casualty department is being provided at a cost of between £4000 and £5000, and the new department for venereal diseases has cost £14,000. The work of the post-graduate college is still much hampered by lack of adequate accommodation.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.—The annual dinner of the school was held at the Savoy Hotel, London, on Thursday, Dec. 5th; Mr. Joseph Cunning, senior surgeon to the hospital, was in the chair and presided over a great assembly of those officially connected with the hospital, including students, and a large number of guests.

Lady Emmott proposed Prosperity to the School and Hospital, having taken Lord Byng's place, who was unavoidably absent. The audience, she said, must be experiencing the sentiment aroused when, on arriving at a theatre, they found a notice to say that the principal part was going to be played by a substitute; further, she did not feel qualified to speak, being only a lay-woman, as to the scientific attainments of the students, although she was able to compliment them warmly on the excellence of the entertainments which were given each Christmas. Lady Emmott regretted the difficulties made by the metropolitan teaching hospitals with regard to the admission of women students, although this attitude made the work that was done in the School of Medicine for Women at the Royal Free Hospital more than ever valuable. She concluded by paying tribute to the men members of the medical staff for their hearty coöperation in efforts that were being made, and successfully made, to help women students, while she knew that she was right in saying that the students at the Royal Free Hospital were making a fine response.

Mr. Cunning, in reply, called attention to the zeal and efficiency of past physicians and surgeons attached to the staff, mentioning in particular the manner in which Sir James Berry had secured by his pertinacity the erection of the operating theatres. In reviewing more recent developments he said that a new pathological department was urgently needed and that funds were being raised for that

purpose, while the Eastman Dental Clinic had nearly reached completion. He closed by paying a warm tribute to the practical services and generosity of Lord Riddell and Sir Albert Levy.

Dr. Chodak Gregory proposed the toast of the Guests, and said that gratitude was due to Lady Emmott for taking Lord Byng's place and proposing the chief toast of the evening. She reminded the audience that Lady Emmott was both a member of the association of the medical school and a member of the board of management of the hospital, and was therefore well posted in her facts. Enumerating the guests present she selected for special mention Sir Walter Schröder, whose kindness to the young house officers who found themselves in the coroner's court was invariable. Other guests to whom she alluded by name were Dr. Ethel Bentham, a former student of whom the school was proud, as a Member of Parliament; Dr. Catherine Chisholm, representing the Manchester Babies Hospital, who, she said combined the scientific investigation of the infant with the human treatment of the baby; Dr. Deller, the Principal of the University of London, and Mr. Rew, the secretary of the Conjoint Examination Board, whose names had a melancholy association with examinations; Miss Strachey, the Principal of Newnham, whom she congratulated on sending to the Royal Free certain of her own old students; and Lady Rhondda, whose championship of the cause of the working woman was known to all. She associated the toast with the names of Sir Patrick Hastings and Lady Rhondda.

Lady Rhondda, in reply, recalled the history of the school, and made special reference to the Marie Curie Hospital for the treatment of cancer which was staffed from the Royal Free.

The health of Mr. Cunning was proposed by Dr. Elizabeth Bolton, senior surgeon to the Elizabeth Garrett Anderson Hospital, who recalled the debt which the students at the Royal Free owed to the clinical teaching of the chairman, teaching which, she said, was embodied and condensed in a volume known to many generations of students as "little Cunning." Mr. Cunning briefly replied and invited the company to adjourn to the ball-room which promptly became crowded, and remained so until a late hour.

UNIVERSITY OF OXFORD: *G. H. Hunt Scholarship.*—This Scholarship is awarded without examination every second year to a graduate in medicine of the University (of either sex) who has not exceeded five years from the date of passing the final examination for the B.M. degree. Its value is £100, or such smaller sum as two years of the income of the Fund provides. Candidates are required to travel abroad for not less than three months for clinical study or research in medicine. Preference is given to those intending to be surgeons or general practitioners. The next election will be made in April, 1930, and candidates must apply to the Dean of the School of Medicine before Feb. 11th, 1930.

ROYAL SURGICAL AID SOCIETY.—This Society, which was founded in 1862 to supply surgical appliances to the poor, held its annual meeting at the Mansion House last week. The report stated that the total income had been £56,679, and the expenditure exactly £1000 less. During the year 29,262 patients were assisted, and 40,254 surgical appliances supplied at a cost of £46,917.

A CHILDREN'S WELFARE CLINIC.—At the quarterly court of the London Hospital last week Lord Knutsford, the chairman, reported that £3000 had been obtained towards the £4700 required to reconstruct the children's welfare clinic. The present clinic is so overcrowded as to be "a scandal." The Queen has given £250, and Sir Albert Levy has undertaken to contribute £125 a year for 16 years towards the maintenance of the clinic.

INSTRUCTION FOR D.P.H.—A three-months' course of lectures and demonstrations on clinical practice and in hospital administration will be given at the North-Eastern Hospital, St. Ann's-road, Tottenham, London, N., by Dr. F. H. Thomson, the medical superintendent, on Mondays and Wednesdays, at 4.45 P.M., and alternate Saturdays at 11 A.M., from Jan. 6th, 1930. Application should be made to the Clerk to the Metropolitan Asylums Board, Victoria Embankment, E.C. 4.

SCOTTISH WOMEN'S WAR HOSPITALS.—At a meeting of the Scottish Women's War Hospitals at the Royal Fre Hospital last week the Duchess of York received purse containing £6285 for a scheme to commemorate heroic Scots women. The money will be used to build, equip, and endow a new ward in the maternity wing of the Royal Free Hospital and a maternity centre at Islington to be named after the Duchess. Each bed will be named after a unit of the Scottish Women's Hospitals, which worked in most of the fields of operation during the war, or after a member who gave her life in service. One of them will be dedicated to the memory of the founder of the hospitals, Dr. Elsie Inglis.

HARVEIAN SOCIETY: *Buckston Browne Prize.*—The President and Council of this Society have awarded the biennial Buckston Browne Prize of £100 and medal to Dr. C. Bruce Perry, for an essay on "Chronic Streptococcal Illnesses." Proxime Accessit: Dr. R. Cove-Smith.

BERNHARD BARON TRUST.—The annual distribution of grants from the £500,000 trust created by the late Mr. Bernhard Baron has lately been made. Contributions have been received by about 270 hospitals, orphanages, and kindred institutions, the total being £36,530.

LEEDS HOSPITAL FOR WOMEN.—From next Jan. 1st, four wards will be set apart for paying patients, at a charge of 5 guineas a week. Surgeons' fees will be on a reduced scale. There will be not more than two patients to a ward, and no separate cubicles.

DANGEROUS DRUGS ACT PROSECUTION.—Richard William Starkie, whose name was removed from the Medical Register in 1922, and who was stated by the police to have been at one time a police surgeon, and to have been in prison for administering a noxious drug, was sentenced at Maidenhead on Dec. 2nd to 12 months imprisonment for an offence under the Dangerous Drugs Act. The bench at first made the sentence one of hard labour, but subsequently altered this to imprisonment in the second division.

PITHEAD BATHS AT TWOPENCE A WEEK.—On Dec. 7th at the Grassmoor Collieries, New Chesterfield, the Minister of Mines, Mr. Ben Turner, opened pit-head baths of the most modern type. They have cost £14,000, which is provided by the Miners Central Welfare Committee, and the Grassmoor Colliery Company will supply water, electricity, and gas cost free. There is accommodation for 1200 miners and the cost will be twopence a week which will be deducted from their wages.

HOSPITALS AND MOTOR ACCIDENTS.—In the quarter ending with Sept. 30th last motor accident cases cost the Royal Free Hospital £209, of which only £35 was refunded to the charity.—Between April 1st and Oct. 30th last Sheffield Royal Infirmary and Sheffield Royal Hospital treated between them 479 motor accident cases.

BRADFORD ROYAL INFIRMARY.—The annual report for 1928 mentions that approximately 450 persons die annually in Bradford from cancer. An appeal for £20,000 to provide an adequate supply of radium had been sufficiently well responded to to justify the purchase of 1 gramme, and Dr. Chester-Williams, of the London Radium Institute, was appointed radium specialist.

ROYAL GWENT HOSPITAL.—Last year this hospital at Newport, Mon., had a surplus of income over expenditure of £5709 which was used to discharge the debt on the building extension fund. The income was £31,238, the highest in the history of the hospital. The workmen's fund produced £13,400, an increase in two years of nearly 50 per cent. During the year 2257 patients were admitted; there were 6419 cases in the casualty department, and 20,404 attendances in the venereal department.

HOSPITAL ACCOMMODATION AT HARPENDEN.—The Hertfordshire village of Harpenden is at present served by a nursing centre. Mr. Halley Stewart, a local resident, regards this as inadequate to the growing needs of the neighbourhood and, by way of celebrating his approaching ninety-second birthday, has offered 67 acres of land, his own house, and three cottages for the foundation of a cottage hospital.

EYE, EAR AND THROAT HOSPITAL FOR SHROPSHIRE AND WALES.—Last year this Shrewsbury hospital treated 6840 patients, a large increase, of whom 1351 were in-patients. Diseases of the eye and errors of refraction accounted for 4505 of them, and there were 1070 major operations, 88 of which were for cataract; there were 11 cases of ophthalmia neonatorum. The medical officer's report states that the appointment of an honorary dental surgeon has been of great value both from a diagnostic and a curative aspect.

DAVID LEWIS EPILEPTIC COLONY.—At the annual meeting of the David Lewis Manchester Epileptic Colony at Warford, Alderley Edge, on Dec. 5th, it was stated that the demand for accommodation in the colony continued to increase. Although the majority of the people who took up residence in such a colony did not cease to have fits almost all benefited very greatly. The inmates had peace of mind, the enjoyment of life, and the feeling of being useful, without which they must inevitably deteriorate in happiness, in intelligence, in good conduct, and in health. The group system for epileptcs made them feel normal, and instead of depressing them it had the opposite effect.

Medical Diary.

SOCIETIES.

HUNTERIAN SOCIETY.

MONDAY, Dec. 16th.—8.30 P.M., Discussion on The Whitlow and Its Complications, opened by Mr. V. Zachary Cope and Mr. H. W. Carson, preceded at 7.30, by Dinner at Simpson's Restaurant, 2–3, Bird-in-Hand Court, 77, Poultry, Cheapside, E.C.

SOCIETY OF MEDICAL OFFICERS OF HEALTH, 1, Upper Montague-street, W.C.

FRIDAY, Dec. 20th—5 P.M., Discussion on The Public Health Service and its Future, introduced by Prof. H. R. Kenwood and Prof. W. W. Jameson.

CHELSEA CLINICAL SOCIETY.

TUESDAY, Dec. 17th.—8.30 P.M., Discussion opened by Dr. G. Murray Levick on Present Position and Possibilities of Physical Treatment, preceded, at 7.30, by Dinner at the Hotel Rembrandt, Thurloe-place, S.W.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, Dec. 16th.—2.30 to 5 P.M.: Medical, Surgical, and Gynæcological Clinics. Operations.
TUESDAY.—2.30 to 5 P.M.: Medical, Surgical, Ear, Nose and Throat Clinics. Operations.
WEDNESDAY.—2.30 to 5 P.M.: Medical, Skin, and Eye Clinics. Operations.
THURSDAY.—11.30 A.M.: Dental Clinics. 2.30 to 5 P.M.: Medical, Surgical, Nose, Throat and Ear Clinics. Operations.
FRIDAY.—10.30 A.M.: Throat, Nose and Ear Clinics. 2.30 to 5 P.M.: Surgical, Medical, and Children's Diseases Clinics. Operations.

LONDON SCHOOL OF DERMATOLOGY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Dec. 17th.—5 P.M., Dr. J. A. Drake: Urticaria.
THURSDAY.—5 P.M., Dr. H. G. Burford: Pathology Demonstration.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.C.

WEDNESDAY, Dec. 18th.—4 P.M., Prof. E. L. Collis: Industry in Relation to Personal and Public Health.

CENTRAL LONDON THROAT, NOSE, AND EAR HOSPITAL, Gray's Inn-road, W.C.

FRIDAY, Dec. 20th.—4 P.M., Mr. F. W. Watkyn-Thomas: Fractured Skull and the Aural Surgeon.

GLASGOW POST-GRADUATE MEDICAL ASSOCIATION

WEDNESDAY, Dec. 18th.—4.15 P.M. (in the Royal Infirmary), Mr. James Taylor: Surgical Cases.

Vacancies.

For further information refer to the advertisement columns.

Acton Hospital, Gunnersbury-lane.—Res. M.O. £150.
Barnsley, Beckett Hospital and Dispensary.—H.P. £140.
Barnstaple, North Devon Infirmary.—H.S. At rate of £150.
Birmingham General Hospital.—Two Res. Anæsthetists. Each £120. Also Anæsthetist. £250.
Birmingham, Queen's Hospital.—Res. H.S. to Ophth. and Ear, Nose, and Throat Dept. Res. H.S. to Cas. Dept. Each £70. Also Hon. Phys.
Bradford City.—Asst. School Dentist. £450.
Bristol General Hospital.—Two H.P.'s, two H.S.'s, Res. Obstet. O., H.S. to Special Depts. Each at rate of £60. Also Cas. H.S. At rate of £80.
Burnley, Victoria Hospital.—H.S. At rate of £125.
Bury St. Edmunds, West Suffolk General Hospital.—H.S. £150.
Cairo, Egypt, Giza Memorial Ophthalmic Laboratory.—Pathologist and Bacteriologist. L.E. 1200.
Cardiff, Prince of Wales' Hospital.—Res. Surg. £350.
Carlisle, Cumberland Infirmary.—Pathologist and Bacteriologist. £900.
Central London Ophthalmic Hospital, Judd street, St. Pancras, W.C.—Sen. and Jun. H.S.'s. At rate of £120 and £100 respectively.
Chester, Wrenbury Hall Tuberculosis Training Colony.—Res. H.P. £250.
Chesterfield and North Derbyshire Royal Hospital.—Cas. H.S. At rate of £200. Also three H.S.'s. At rate of £100–£175.
City of London Hospital for Diseases of the Heart and Lungs, Victoria Park, E.—Laryngologist.
Coventry and Warwickshire Hospital.—Res. H.S. £125.
Dorchester, Dorset Mental Hospital, Herrison.—Jun. Asst. M.O. £300.
Durham County Hospital.—Jun. H.S. At rate of £120.
Edinburgh Royal Infirmary, Ophthalmic Dept.—Sen. Clin. Asst. and Clin. Tutor. £145. Also two Clin. Assts. Each £200.
Exeter, Royal Devon and Exeter Hospital.—Hon. Asst. Phys.
Grove Park Hospital, Lee, S.E.—Jun. Asst. M.O. £500.
Guildford, Royal Surrey County Hospital.—H.S. £150.
Huddersfield Royal Infirmary.—Res. Surg. O. £200.
Hull Royal Infirmary.—Second H.S. At rate of £150. Also Sen. H.P. At rate of £200.
Kidderminster and District General Hospital.—H.S. £150.
Lancashire County Council.—Asst. County M.O., &c. £800.
Leicester Royal Infirmary.—Hon. Phys. and Hon. Surg.
London Hospital, E.—Cardiographic Dept., Paterson Research Scholar. £400.
London University.—Geoffrey Duveen Travelling Studentship. £450.
Manchester Ancoats Hospital.—Asst. Pathologist. £350. Also Med. Reg. and Surg. Reg. Each £100.
Manchester, Baguley Sanatorium.—Sen. Asst. M.O. £500. Also Asst. M.O. £350.
Manchester, County Mental Hospital, Prestwich.—Asst. M.O. £500.
Manchester Royal Infirmary, Roby-street.—Anæsthetist. £25.
Manchester, Salford Royal Hospital.—Res. Surg. O. £200. H.S. At rate of £125. Also H.S. to Aural, Skin, &c., Depts.
Miller General Hospital, Greenwich-road, S.E.—H.P. and H.S. Each at rate of £125.
Newark Hospital and Dispensary.—Res. H.S. At rate of £150.
North Wales, Ruthin Castle.—Jun. Res. Phys. At rate of £200.
Perth Infirmary.—H.P. £75.
Portsmouth, St. Mary's Hospital, &c.—1st Asst. Res. M.O. £350.
Princess Louise Kensington Hospital for Children, N. Kensington. H.S. At rate of £75.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. and Jun. Clin. Assts.
Royal Waterloo Hospital for Children and Women, Waterloo-road, S.E.—H.P. At rate of £100.
Ryde, Royal Isle of Wight County Hospital.—Res. H.S. £180.
St. John's Hospital, Lewisham, S.E.—Orthopædic Surgeon.
Shrewsbury, Royal Salop Infirmary.—Res. H.S. and Res. H.P. Each at rate of £160.
Singapore General Hospital.—Anæsthetist. £840.
Swansea County Borough.—Asst. M.O. £600.
University College Hospital, Gower-street, W.C.—Hon. 1st Asst. for Ear, Nose and Throat Dept.
Walsall General Hospital.—Cas. H.S. At rate of £120.
Walthamstow Borough Education Committee.—School Dentist. £500.
Weir Hospital, Grove-road, Balham, S.W.—Jun. Res. M.O. £150.
Westmorland County Council.—Asst. County M.O. £600.
Wigan Infirmary.—Third H.S. £150.
Wolverhampton, Royal Hospital.—Cas. O. and Res. Anæsthetist. At rate of £125. Also H.S. for Ear, Nose and Throat Dept. At rate of £150.
Wrexham and East Denbighshire War Memorial Hospital.—Hon. Surgeon to Ear, Nose and Throat Dept.

The Chief Inspector of Factories announces vacancies for Certifying Factory Surgeons at Redruth (Cornwall); Abingdon (Berks); and at Dover (Kent).

The Home Secretary gives notice that there will shortly be a vacancy for a Medical Referee under the Workmen's Compensation Act, 1925, for the Dundee district of the Sheriffdom of Forfar. Applications for the post from duly qualified medical practitioners should be addressed to the Private Secretary, Scottish Office, Whitehall, S.W. 1, and should reach him not later than Dec. 24th, 1929.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act for the Districts of the Bristol, Wells and Weston-super-Mare County Courts (Circuit No. 54). Applications from surgeons should reach the Private Secretary, Home Office, Whitehall, S.W., not later than Dec. 31st.

Births, Marriages, and Deaths.

BIRTHS.

GARNHAM.—On Dec. 4th, the wife of Dr. P. C. C. Garnham, of a daughter.

SHIRES.—On Dec. 5th, at Welbeck-street, W., the wife of Dr. Bertram Shires, of a daughter.

MARRIAGES.

DANBY—ARKELL.—On Dec. 7th, at Holy Apostles Church, Cheltenham, Alfred B. Danby, F.R.C.S., of Birmingham, son of Mr. and Mrs. Danby, of Wellington, New Zealand, to Victoria, youngest daughter of the late James Arkell, of Highworth, Wilts, and of Mrs. Arkell, Oak Hill, Charlton Kings, Cheltenham.

READ—GILL.—At Linkinhorn Parish Church, Cornwall, on Saturday, Dec. 7th, by the Rev. G. Rhys, assisted by the Rev. C. C. C. Bosanquet, Charles David Read, M.B., F.R.C.S.E., 1, Park-crescent, London, W.1., to Mabyn Gill, The Old House, Rilla Mill, Callington, Cornwall.

DEATHS.

ATKINSON.—On Dec. 6th, at St. Thomas's Hospital, Walter Alexander Atkinson, M.D., B.S., of Camberwell New-road, S.E., aged 66.

CUMMING.—On Dec. 7th suddenly, George William Hamilton Cumming, M.D., of "Overton," Torquay.

HUTCHISON.—On Dec. 4th, at Cheadle, Cheshire, James Hutchison, M.D., formerly of Norbury, S.W.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Comments, and Abstracts.

THE FOUNDER OF THE ROTUNDA.

THE Rotunda Hospital, Dublin, which is appealing for £20,000 to bring its buildings and equipment fully up to date, was founded early in the eighteenth century by a medical man, Dr. Bartholomew Morse, a native of Maryborough in the Queen's County. Morse was born in the year 1712, and after making a special study of obstetrics he settled in Dublin, where his compassion was aroused by the wretched condition of poor women approaching confinement who found themselves without medical aid. Having resolved to do all in his power to have a hospital established in which relief and nursing should be gratuitously supplied, he travelled France, Holland, and other parts of Europe to study hospital systems.

On his return to Dublin he took a house in St. George's-lane (now South Great George's-street), furnished it with 24 beds, and in 1745 opened there the first hospital of the kind ever established, it is said, in the British Dominions. The expenses of the undertaking were defrayed chiefly out of his own purse, supplemented by the proceeds of lotteries, plays, concerts, and oratorios. Dublin was exceedingly musical in those days, and as hospitable as it is in our own generation. Morse induced many foreign vocalists and instrumentalists to come over to Dublin, among them the Italian Castruccio, who, after delighting everyone with his performances which he gave for little or nothing, sank into poverty and died in Dublin, too proud to let anyone know he was in want. So great was the concourse of people at his funeral in St. Mary's Churchyard, Jervis-street, that it is said the parish beadle was crushed to death. When the hospital in George's-lane became too small to accommodate all who sought admission Morse secured a plot of waste ground in Great Britain-street more than four acres in extent, and in August, 1748, began to lay out at a cost of about £20,000 of his own money a garden which should be an attractive place of promenade for the nobility and gentry residing in the neighbourhood. Shrubberies were planted, ornamental walks laid out, pavilions and a coffee-room erected. Fountains, statues, and coloured lamps adorned the walks, and orchestral performances brought in many hundreds of pounds annually. When he had £500 in hand, Morse started the magnificent pile of the Rotunda as we now know it. Up to the end of 1755 he collected £11,694, but this sum, added to the whole of his personal fortune, being insufficient, he petitioned the Irish Parliament for aid and obtained two grants of £6,000 each with a further award of £2000 for himself as a recognition of his exertions in the cause of humanity. On Dec. 8th, 1757, the upper ward of 50 beds was opened by the Duke and Duchess of Bedford, the ceremony being followed by a concert of vocal and instrumental music. From these concerts in the gardens the hospital continued to benefit to the extent of £4000 a year. Morse himself only just lived to see the fruition of his efforts. He fell ill in the winter of 1758 and died in February, 1759, almost without personal estate.

THE DIFFERENTIATION OF THE PROPERTIES OF FOODSTUFFS.

THE various nutritive constituents of food and their biological values, together with chemical tests to identify each, are fully dealt with in a small book[1] recently published from the department of physiology of King's College of Household and Social Science. Methods of analysing foodstuffs in order to isolate their constituents are carefully explained, with full details of the chemical reagents required and the minimum of apparatus, the latter being of such simplicity that it could be procured at the remotest store and set up in any classroom. The chemical changes involved in digestion and the effects induced by cooking foods are illustrated by suitable experiments. Finally, food tables are given and dietary standards are discussed. Teachers of domestic science will find this book of great assistance in preparing practical class demonstrations on the properties of food.

"FISGARD."

To the Editor of THE LANCET.

SIR,—I notice in your Services column in THE LANCET last week an appointment to a ship *Fisgard*. Being curious about this name I consulted many reference books such as biographies, gazetteers, lists of battles, encyclopædias, and so forth without discovering the name mentioned. In the Navy List it appears as *Fisgard* and even in 1854 I see there was a *Fisgard* at Woolwich. I have also just seen a new catalogue of prints which describes an aquatint in colours of the capture of *Immortalité*, Oct. 20th, 1798, by H.M.S. *Fishguard*, Capt. T. B. Martin, on his way to Brest after the attempted invasion of Ireland on Oct. 12th, 1798. But the old Navy List says a medal was issued for the capture of the French frigate *L'Immortalité*, Oct. 20th, 1798, *Fisgard*, Capt. Thomas Byam Martin. I suppose by this it was not "*Fishguard*" but the question remains unsolved. What is the origin of the name? Perhaps one of your erudite readers could supply an answer.

I am, Sir, yours faithfully,

London, Dec. 7th, 1929. ETYMOLOGIST.

THE SCHOOLMASTER AND THE FIRST M.B. EXAMINATION.

AT the annual general meeting of the Incorporated Association of Headmasters, to be held at the Guildhall, London, on Jan. 3rd, Dr. Terry Thomas, headmaster of Leeds Grammar School, will propose:—

(*a*) That the Incorporated Association of Head Masters agrees with the General Medical Council that a boy should have attained the age of 17 before entering himself at a University or a Medical School recognised by one of the licensing bodies.

(*b*) That a pass at the main subject standard in a Higher School Certificate Examination in any of the subjects of the First Professional Medical Examination should be accepted, subject for subject, for the purposes of exemption from such subjects in the latter Examination.

WHITAKER'S ALMANACK.

THE sixty-seventh annual volume of Joseph Whitaker's Almanack still contains the astronomical and other cosmic data which have made it the boon companion of seamen and star-gazers for half a century, but it also contains the current everyday knowledge which makes it (in the immodest but perfectly true words of the editor-in-chief) indispensable to all who speak or read the English language. Civilisation would suffer appreciably if the files of the Almanack were lost in a cataclysm. While it contains classified information about the metropolitan hospitals and other medical information which may be of value to the public, its value to the medical man is as a vade-mecum of general information. The new features of the present issue include the names of the new Ministry and of the Members of the new House of Commons which alone make it worth its price. The Almanack has been published in the first week of December in order to make it available as a Christmas or New Year's gift to friends and kinsmen overseas. The price is 6*s*. for the complete edition of 928 pages, 3*s*. for the shorter edition of 608 pages in paper cover.

CHOCOLATES AND COCOA.

Messrs. Cadbury Bros., Ltd., have added to their large range of chocolates several preparations with new and palatable flavours, and these are included in a selection known as "Princess Elizabeth" assortment. These chocolates should prove popular, as they supplement the "King George" and other favourite assortments. Other samples sent to this office of recent invention included the new "Holiday" slab chocolate, and a conserve containing almonds and raisins; the well-known Bournville Cocoa, and a new beverage "Cadbury's Cup Chocolate," which is claimed to possess the virtues of delicacy and flavour associated with French *chocolat*, while it can be made instantly with boiling milk. Special attention has been given by the firm to the appearance and packing of their wares, while all the new productions are up to their high-class standard.

Appointments.

CATCHPOOL, DOROTHY M., M.B., B.S. Lond., has been appointed Medical Officer of Health for Friern Barnet.

MCCURRICH, H. J., M.S., M.B. Lond., Hon. Surgeon to the Hove Hospital.

New Sussex Hospital for Women and Children, Brighton: MANLEY, M. M., M.B., B.S. Lond., House Physician; ROBINSON, M. M. F., M.B., B.Ch., B.A.O. Belf., House Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: D'ALTON, R., L.R.C.P. Irel., L.R.C.S. Irel (Ammanford, Carmarthen); SECCOMBE, C. W., L.R.C.P. Lond., M.R.C.S. (Southall, Middlesex); and ROBERTS, J., M.B., Ch.B. Liverp., F.R.C.S. Eng., Hon. Asst. Laryngologist, Royal Infirmary, Liverpool.

[1] Properties of Food. By W. M. Clifford, M.Sc. Lond., Assistant Lecturer and Demonstrator in Physiology, King's College of Household and Social Science; and V. H. Mottram, M.A. Cantab., Head of the Department of Physiology in the College. London: University of London Press. Pp. 128. 2*s*. 6*d*.